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HUNTERIAN LECTURES.

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with the author's best regards
January 1886.

HUNTERIAN LECTURES.

HUNTERIAN LECTURES

ON

SOME OF THE INJURIES AND DISEASES OF THE NECK AND HEAD, THE GENITO-URINARY ORGANS, AND THE RECTUM.

DELIVERED BEFORE

The Royal College of Surgeons of England,

JUNE, 1885.

BY

EDWARD LUND, F.R.C.S.,

MEMBER OF THE COUNCIL AND COURT OF EXAMINERS OF THE COLLEGE,
CONSULTING SURGEON TO THE MANCHESTER ROYAL INFIRMARY,
PROFESSOR OF SURGERY IN THE OWENS COLLEGE,
VICTORIA UNIVERSITY, ETC. ETC.

LONDON:
J. & A. CHURCHILL,
11, NEW BURLINGTON STREET.

1886.

RD521
L97

MANCHESTER:
PALMER AND HOWE, PRINTERS, PRINCESS STREET.

THESE LECTURES,

BEING PART OF THE COURSE OF

HUNTERIAN LECTURES,

DELIVERED BEFORE

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

IN THE YEAR

1885,

ARE DEDICATED BY THE AUTHOR

TO

JOHN COOPER FORSTER, Esq.,

AT THAT TIME

PRESIDENT OF THE COLLEGE,

IN PLEASING RECOLLECTION OF AN

UNINTERRUPTED FRIENDSHIP

OF MORE THAN

FORTY YEARS.

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Hunterian Lectures.

LECTURE I.

ON SOME OF THE INJURIES AND DISEASES OF THE FACE, MOUTH, AND NECK.

Mr. President, Vice-Presidents, and Gentlemen,

I SHOULD not have presumed to accept the post I now occupy as joint lecturer with Professor Wood in the Hunterian Course of Lectures to be delivered in this College during the present year, if I had not been assured by our President, at the time of my appointment, that I might secure your attention to any topic I might select, so long as it referred, in a practical way, to the common work of our profession.

The difficulty I had in my selection was this,—I felt it was not possible for me to bring before you sufficient new matter in reference to any one surgical subject to fairly occupy the time allowed for my lectures. I might expand any subject indefinitely if I traced the history of it from our earliest records, but this would be waste of time. For when I consider the audience I have the honour to address,—that there are present to-day the *élite* of our profession, men who have had opportunities far more

extensive than my own for watching different lines of treatment and different classes of surgical disease,—it is hardly possible that I can offer them any new matter worthy of their attention.

I am constrained, accordingly, to give my subject-matter a very general character, and to approach the details of it by addressing myself chiefly to the members of our college—those who, busily engaged in practice, frequently have to deal with difficult points of diagnosis, or obscure and doubtful cases for treatment, presenting problems of great interest, upon the correct and ready solution of which success or failure may depend.

I begin by inviting your attention to the consideration of cases of slight scars or injuries of the face which may or can lead to permanent and conspicuous deformity. I was requested more than twenty years ago to attend a little boy, four or five years of age, who had, a short time previously, while running about in a dining-room, tripped his foot upon the carpet, and fallen violently against a sharp projecting portion of furniture, producing a laceration of the skin and subjacent tissues, on one side of the face, just above the malar bone. There was not much hæmorrhage, the wound being a lacerated one, and not much contusion, and so quickly and cleanly had it been made that it seemed more like an incised than a lacerated wound. I proceeded at once to replace the flap of skin and to adjust the edges of the cut as completely as I could with strips of plaister, carefully and accurately applied.

I fixed the whole with a pad of lint and a light bandage, and thought I had done all that was needful. On the third day—perhaps it may have been the fourth—I removed the dressings, and then, to my regret, discovered the error I had made. Spasmodic action in the marginal fibres of the *orbicularis palpebrarum* muscle had been at work, and

had drawn the edges of the wound apart, so that although healing was far advanced there was still a granulating surface in the centre between the retracted lips of the wound. It was not long before perfect cicatrization was accomplished; but there was a scar which it was too late to prevent, and which I felt sure would be permanent. Time has shown that these fears were well founded, for now,—as often as I see this young gentleman it appears as if with every succeeding year the ill effects of my bad treatment become more and more apparent. As Sir James Paget once said, a scar in a child, of the length of its little finger, may grow as the child grows, and eventually equal in length the little finger when he is an adult. Had I remembered at the time of the primary treatment of this wound how intimately the muscles of the face are blended with the skin, in which are truly their points of insertion, I should have done then what I have done ever since under similar circumstances, viz., close wounds upon the face with fine silken sutures, not sparingly, but abundantly inserted, and retained just so long as may be needful to fix the flaps of the wound to the deeper tissues, and keep the edges of the wound as nearly as possible in contact.

In contused wounds of the face it is very needful, in order to avoid permanent marking, to search with great care for the entrance of and the removal from the wound of any foreign matter, if there be even the smallest breach of surface, *i.e.*, solution of continuity in the parts so injured. I had once a very curious illustration of this, one which made a lasting impression upon me, and which has influenced my practice in many ways. A little boy, running out of the garden into a paved court at the back of a house, fell suddenly, and was found a moment afterwards lying flat upon his face, screaming lustily. He was taken into the house, and it was found that he had struck

his forehead against the flat stone or flag upon which he had fallen, and thus produced a bruised spot exactly in the middle, just, as it would seem, over the frontal vein. The boy had some slight symptoms of concussion of the brain: he vomited, and afterwards became drowsy and indifferent to what was passing, so I was asked to see him. My attention was chiefly given to the brain symptoms, such as they were. But I noticed that the contused part was raised and much discoloured, as if from blood effused beneath the skin, particularly in the centre of the swelling, where the cuticle was slightly abraded. This was all I then noticed. I applied an evaporating lotion to the forehead, and, with care as to quiet and regimen, in a few days the little fellow was well, except that the skin was discoloured, and that there was an unusual prominence at the seat of injury, which I took to be caused by effusion of blood. Not being quite satisfied with this state of things, I ordered a lotion of lead and opium to be applied, not as an evaporant, but by covering the lint with which it was wetted with oil-silk to cause it to bring about a softening of the tissues, and, as I thought, to hasten the absorption, or else the breaking down of the clot. In about five days, say more than ten days from the date of the accident, I examined the skin very minutely, to see if I could discover any actual wound which might have healed prematurely, but without success. I therefore made a small vertical incision into the part with a tenotomy knife, and out dropped, or, rather, I pressed out, with some difficulty, a piece of gravel of considerable size. From that day the swelling subsided, absorption of effused blood and lymph went on, and all did well. Yet I have never forgotten that case. It showed two points of interest. It proved how small a wound may be made in the skin by the rapid transit of a hard resisting body, like this particle

of gravel, by reason of the elastic skin yielding to, then closing over its passage, like the smallness of the aperture of entrance of a bullet of high velocity. It also showed, as I shall have occasion to remark further on, how, where foreign bodies from without are either forced into the interior of the body or become embedded in any of the tissues, the effect of the presence of a body so impacted will depend entirely on its physical composition. If it be porous, so that it can absorb the fluids—the serum, for example—of the part, it will doubtless already have within its pores the factor of putrefactive change; and thus a septic state of the surrounding tissues is almost sure to result; whereas, if it be solid and non-porous, as in this instance, it may remain dormant and harmless. We know that such is often the case if a small shot penetrates the skin of the face or other exposed part of the body, and even with a bullet of large size. But in these cases, most probably, the shot or the bullet travelled alone, and in its progress did not carry with it any porous wadding or other material, and thus it has lain harmless in the wound, so far as causing any local poisonous effects. This child fell upon a flat stone, on which there lay, at the spot, a small piece of gravel. It was forced through the skin by stretching it enormously in proportion to its size, and, then slipping within, was buried in the subjacent tissue, and the small wound in the elastic skin closed over it immediately. In a manner somewhat similar, particles of dirt will often be driven deeply into the skin but not beneath it, and if not diligently sought for, and thoroughly removed, will leave permanent and ugly marks. Grains of gunpowder, when the force of the explosion is not so great as to injure the tissues severely, will thus become fixed in the skin and produce lasting disfigurement. In this condition of things I have succeeded very well in removing such marks by

this procedure:—The night before the operation (which is to be performed under chloroform) I cause the skin over each of the black dots or marks, or, at any rate, the most conspicuous of them, to be painted with a thick vesicating collodion, which for these and similar purposes answers admirably. This being applied with a camel-hair brush over the marks, the surface is allowed to dry. In ten or twelve hours, the cuticle over the part will be found raised, as in an ordinary blister, only with this difference, that the collodion has strengthened and thickened the epidermis, and it can, from this increased thickness, be torn off with forceps from the spots over which it had been painted. The papillary layer of skin so exposed will most probably have embedded in it the foreign matter which we wish to remove, and this can be done by means of some small scraping instrument, *e.g.* a Volkmann's spoon in miniature, or a hook or gouge such as is employed for extricating particles of iron or coke from the surface of the cornea.

In this way, in the case of a little girl, who by falling out of a carriage—the door being imperfectly fastened and the child leaning against it—fell face downwards on to the roadway, which was very muddy, and was dragged along a few paces, the face still resting upon the ground,—I found that although every care had been take to cleanse the wound before it was allowed to heal over by granulation, a very conspicuous deformity was the result. A number of lines were visible, of a light brown colour, where the face had been scratched, and these I was able to remove, after an interval of many months from the date of the accident, by first applying the collodion, not in one large patch, but in a number of fine lines over the marks, waiting for the vesication, removing the cuticle, and carefully tearing away each particle of matter such as mud would deposit, a lens

being used to aid the sight. The surface was then painted over with dilute carbolated oil, and allowed to heal; and in the particular case to which I refer, no permanent mark has resulted.

We have occasionally to deal with deformities caused by cicatrices in the face, the result of adhesions over the site of carious or necrosed bone, such as in the upper jaw may be found near and around the orbit in strumous subjects; or on or about the lower jaw, where there have been sinuses from disease of the fangs of the teeth after gingival abscess; or in the neck, as a consequence of abscesses around the glands, or within their substance. These not unfrequently leave very ugly cicatrices, with deep and irregular depressions.

It is very desirable to correct such deformities, but this is not a very easy matter to accomplish. It is useless to make the attempt while inflammatory action is still going on at the original seat of the disease. If suppuration around the glands in the neck is still present, some other treatment must be resorted to; and if the action is still proceeding in the sinus leading down to a tooth, or to necrosed or carious bone near the orbit, it is little use to interfere. We must remove the cause if possible, and then wait until all destructive inflammatory changes are in abeyance or perfectly arrested. Then, studying carefully the extent, direction, and depth of the depression, a fine-pointed narrow tenotomy knife should be passed through the skin at about half an inch from the edge of the depression, carried onwards beneath the skin until it reaches the deepest part, but still with its point beneath the cuticle. In this way we can divide subcutaneously the cicatricial bands as well as the adhesions which fix the skin to the bone, without piercing the skin at the bottom of the depression, or producing any counter-puncture, with the

point of the knife. In doing this, blood will escape from the divided capillaries; but unless a vessel of considerable size should be cut through, the blood so effused will not be excessive, and the operation being performed very slowly, the blood as it escapes will collect beneath, and gradually lift up the skin nearly on a level with the surface around.

Much will depend upon dividing the skin only at the point of puncture, all else being done subcutaneously. Collodion may be applied after the knife is removed; but ultimate success will be secured by what has been called "organization of clot;" that is to say, the clot of blood which forms in the space or cavity left after the elevation of the scar, becomes partly absorbed, or partly organizes, assisting in the development of new connective tissue, which more or less completely fills up and obliterates the slight depression previously existing. In this way many of these depressed cicatrices may be successfully dealt with. But I must assume that the depression is not very deep, and that the original injury has not occasioned any great loss of tissue.

Although a surgeon may not practise dentistry, except in its most simple forms, it is very desirable that he should have acquaintance with the phenomena incident to a diseased condition of the teeth, such as may enable him quickly to recognize and to treat, or to direct the treatment of such cases. I was once consulted on a case of supposed trismus, in which a young lady was suddenly—that is, in a few hours—seized with inability to open the lower jaw, with intense pain referred to the right temporo-maxillary joint. There had been no premonitory symptoms, except such as might arise from cold, or exposure to a draught of cold air; and yet in a few hours the mouth was firmly closed, with complete inability to open it. I

noted, however, that the masseter muscles were not rigid, that there was no sardonic smile, and in no other part of the body, the abdominal wall or elsewhere, was any muscular rigidity to be discovered. She had had slight difficulty in swallowing for a few days previously, and also tenderness in mastication, which was referred to the situation of the last molar tooth on the right side; and the patient did not know that she had as yet not cut the last molar tooth of that side. Passing my finger along between the teeth and the cheek to the furthest point, I found the gum over the situation of the lower wisdom tooth swollen and tender. Then, with a very long gum lancet set in a handle, which I happened to have with me, I managed to scarify the gum at this spot very freely, causing much blood to flow, and with it a drop or two of pus, to the great relief of the patient, who, in a few hours, with the help of hot water within and fomentations externally, was able to open the mouth to the fullest extent, and quickly recovered from all other disturbances. No doubt inflammation had existed beneath the gum covering the dens sapiens; and this, while it had run on to the suppurating stage, had so excited action in that part of the temporal muscle which lies on the line of the alveolar process, as to set the entire muscle into a condition of general spasm and to cause its sudden and powerful contraction with insuperable closure of the mouth. I have known a very troublesome ozœna kept up, and much constant mucous discharge from one nostril continue for many weeks, until one central incisor tooth which was tender on percussion and somewhat loose in its alveolus had been removed, and then the discharge from the nostril entirely ceased, as if mischief of an inflammatory nature had existed near to the root or upper end of the fang of the tooth, perhaps with minute perforation of the front part

of the floor of the nostril, so as to excite continual congestion in the mucous membrane, and so lead on to the ozœna.

I also know of a case in which a molar tooth was the cause of a series of nervous symptoms which were very painful and very difficult to explain, as far as the exact cause was concerned. A lady had had the dens sapiens of the lower jaw, on the left side, carious, for a long while. A dentist prepared and dressed it, and at last she was able to go about as usual, although it was still difficult for her to masticate freely on that side of the mouth. When the more acute symptoms had abated, the cavity of the tooth was filled with amalgam, as a temporary stopping, and all seemed to go on well. But this patient, as I was afterwards informed, soon began to suffer pain in the left shoulder and down the external side of the arm, with a certain degree of weakness on attempting to raise the arm and set the deltoid muscle in action. There was pain also in the left side of the neck, and in the left ear. These symptoms came on very slowly, but were persistent, and were several weeks in reaching their maximum intensity. It was then determined to remove the stopping from the wisdom tooth, although the tooth itself did not seem to be specially tender or painful. As soon as this was done, a gush of fœtid pus showed that suppuration had been present beneath the stopping on the surface of the dental pulp; the escape of the pus gave immediate relief, and in a short time, one or two days, the lady had no more pain, or weakness in the arm. The tooth was not extracted, but refilled with a removable stopping. All these effects, being due to pent-up secretion and the nerve irritation resulting therefrom, might have been entirely prevented by the adoption of that elegant system of drainage through the

fang, known to dentists by the name of rhizodontrophy, and which is so peculiarly well adapted to similar cases of irritable pulp.

Sinuses in the cutaneous tissue of the face, as one of the consequences of inflammation of the dental alveoli, with suppuration and perforation of the wall, may exist for many months before they cause ulceration of the skin, after which we may find that the skin is under-burrowed for some distance beyond the orifice of the sinus. Even if the source of the irritation has been got rid of by the extraction of the tooth, the skin over the orifice of the sinus may remain for a long while in a congested and unhealthy condition, and complete cicatrization cannot be obtained until the skin so undermined has been entirely removed, by clipping it off with scissors, or dividing it with a scapel.

Sinuses appearing in the neck, among the loose tissues below the jaw, in cases of chronic suppurating glands, require similar treatment. Here the only chance of securing satisfactory healing is to remove the nearly dead loose skin, which will not adhere by reason of the unhealthy granulation tissue which exists beneath it, or on its under-surface. And now I would consider what are the changes which these superficial glands undergo in the progress of an attack of inflammation. The situation of the inflammation is more generally the cellular tissue which forms the capsule of the gland than the interior of the gland itself; so that the suppuration which follows is produced more by a peri-glandular than by an intra-glandular abscess, although this latter condition does, without doubt, sometimes occur. Now, it is by reason of the looseness of the structures in which the glands lie, and the frequent movements among the tissues of the neck, that we get this burrowing and general extension of the ulcerative process some distance around the inflamed gland. The

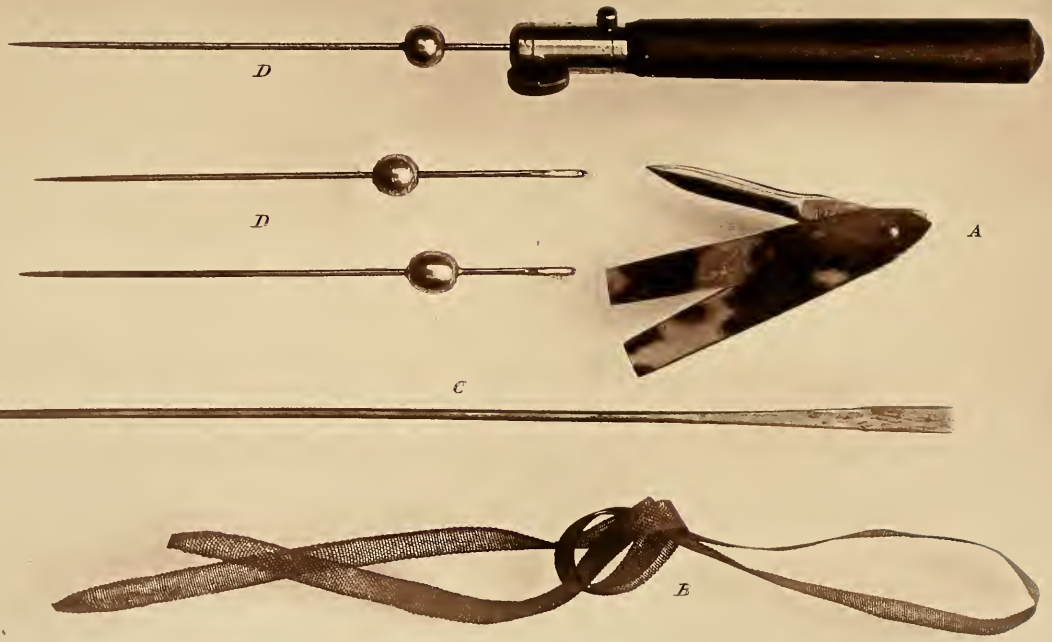
contents of the abscess escape, but the displaced skin will not unite to the subjacent parts by reason of its lowered vitality and insufficient blood supply, and so it remains non-adherent for weeks and months. If at last it does adhere, it will be so drawn in and puckered as to cause a depressed and irregular cicatrix.

Apart from any effects upon the constitution which may arise from the presence of chronic suppuration, and the dissemination through the system of poisonous influences which may show themselves as tubercular deposits in distant organs, it is always desirable to restrain these morbid changes in the glands where this is possible.

Long experience in the use of the iodide of potassium, as an external application in these cases, has only confirmed an opinion previously expressed, that the iodide salt will do all that iodine itself, applied locally, can do, without that excessive action on the skin which the latter produces. In the very earliest stage of congestion of the glands, before inflammation has really set in, the skin over the glands should be painted many times during the twenty-four hours with an alcoholic solution of the iodide of potassium with the bromide of ammonium, to which is added just enough glycerine, and no more, to prevent the crystallization of the salts on the skin.* In this way to keep the part thoroughly saturated with the saline matter, is of immense importance in controlling the changes going on in the tissues around the glands, and the congestion of the glands themselves. Where this iodide application has failed, I have seen excellent results follow the careful use of the *emp. hyd. c. ammoniaco* applied over the enlarged glands, before suppuration has commenced. It requires, however, to be used very cautiously, or it may expedite

*R. Potass. Iod., ℥iv; Amm. Bromid., ℥ij; Glycerini, f℥j; Aq. Rosæ, f℥j. Misce et adde Sp. Vin. Rect. *q.s.* ad f℥iv. M. ft. solutio.

Plate I.



suppuration instead of averting it. In children it is a good plan to apply the plaister only at night, removing it in the morning, and not to continue its use if irritation of the skin is produced. It should be diluted by the addition of one-third or one-fourth of *emp. saponis.*

It is often difficult to determine when and how to open abscesses which form around the inflamed glands of the neck in delicate subjects of the strumous constitution. I always delay the incision until I am satisfied not only that fluid exists, but that it is at least two-thirds in bulk or quantity of the diseased mass. If done earlier than this, the incision will cause only a slight diminution of the swelling, and the wound thus produced may excite a fresh course of inflammatory action. As to the mode of puncture, little, in my opinion, is gained by aspiration, even if only on so small a scale as that of puncture by the hypodermic syringe needle, and the removal of the liquid portion of the pus. I always use a very small lancet, with cutting edges, as represented in Plate I., Fig. A. This serves the purpose of an exploring needle, to ascertain if there is really fluid within the swelling ready for evacuation; and then, by the same instrument, we can enlarge the incision along the lines of the platysma fibres to any extent. So small an incision as this would be quickly closed by adhesive inflammation, unless steps were taken to prevent it. With this object, by means of the flat-ended probe, Fig. C, I pass into the cavity from which the pus has escaped, a small coil of thin silk ribbon, Plate I., Fig. B, moistened with a lotion of nitrate of lead and weak carbolic acid, and allow a part of the ribbon to project beyond the incision, placing over all, the same lotion, with lint and oil-silk. If in a few days subsidence of the swelling does not result, I try to hasten the absorption of the lymph with which the part is infiltrated by having each ribbon-tent moistened with

the tincture or the liniment of iodine, or I dust it with the powder of precipitated iodoform, pressing one end of the ribbon well down to the bottom of the cavity, yet leaving a portion of it outside the wound. By these simple means, in addition to judicious hygienic measures, what are known as strumous glands in the neck may be controlled in their enlargement and progress to a wonderful degree, and the resulting scars and deformities minimised to a great extent—unless the primary lesion has been in the centre of the gland-structure itself, and then I believe the progress is much less manageable, and that the results are much less satisfactory, and more liable to lead to constitutional complication.

Scalds and burns in children, or even in the adult, are a frequent source of deformity in the face and neck, as they may be, in fact, in any part of the body. I cannot enter into all the various modes of overcoming deformities produced by these accidents when they are very extensive and the contraction of the scar-tissue is very complete and firm, since various plans of treatment are open to the consideration of the surgeon. For where the true tissue of the skin has been destroyed, even the most cleverly designed operation for correcting the deformity will occasionally fail. I would rather comment upon the method of treatment to be resorted to with the best prospect of success at the moment of the injury, or as quickly afterwards as possible. In scalds and superficial burns upon the face and neck in young children, I have seen such admirable results from the application of treacle, or molasses, directly over the surface as a continuous dressing to the scald or burn until complete cicatrization is effected, that I would place this first on the list of remedies in such cases. It has this great recommendation, that it is a domestic remedy, inasmuch as it is a substance found in nearly every house

where children abound, and therefore it can be quickly applied. It excludes the air from contact with the highly sensitive papillary layer of the skin, and so diminishes in a marked degree the burning pain which attends these injuries. The best mode of applying it in scalds and burns on the face and neck is to take blotting-paper, or soft flexible cap-paper, torn into pieces, each about half an inch by an inch and a half, as these will have their edges more fluffy and absorbent than if the paper is cut with scissors. Then dip the pieces of paper into the treacle, and so lay them on the part, one by one, as to cross in every possible direction, that by mutual overlapping and entanglement they may unite and form a closely-fitting mask or shield to the part. If the scald or burn is on the face treacle has this advantage in children, that if a little of it runs down into the angles of the mouth it is not distasteful, but rather agreeable to the little patient; and if it has been applied immediately after the injury, the air and its constituents will not have access to the wound so as to set up septic action in the secretions of the part. If the treacle be in excess round the edges of the dressing, it may be removed by wiping with a dry cloth; and the edges may then be dusted with flour, powdered oxide of zinc, bismuth, or other drying material. Possibly this treacle-dressing acts simply as an air-excluder; it is neutral in its reaction, and causes no pain; and, like all saccharine preparations, it has in some way the power of controlling oxidizing changes, as is seen in such pharmaceutical preparations as the saccharine carbonate of iron and the syrup of the iodide of iron, both of which are salts of very unstable composition, yet they may be preserved unchanged while in contact with sugar.

For scalds and burns on larger surfaces than those of the face and neck, I employ the ointment I recommended

many years ago in my report on hospital practice, and which is, in substance, resin ointment, with oxide of zinc and carbolic acid in the proportion of a drachm of each of the two latter substances to an ounce of the cerate.* I have never known injurious effects follow the use of this preparation of carbolic acid in the way of carbolic poisoning, melanuria, and the like, and that it has a sedative or anæsthetic effect on the tender surface of the skin cannot be doubted. The shock to the nervous system incident to larger burns and scalds is propagated chiefly along the sympathetic nerves, and depends greatly on the particular part of the body injured and its extent of area. Yet the continuance of this state of things, the prolonged pain, and the nervous restlessness which results from it, are caused, I believe, mainly by prolonged contact of the injured surface with the air, where the applications made use of do not effectually exclude it.

As to the effects of burns in regard to the contraction of tissue which follows them, I have long considered that this is very much influenced by the intensity and duration of the inflammatory action which attends upon the injury. Where the effused lymph and the cicatricial tissue which it helps to form are deposited under conditions of high vascularity and vital action, firm and irresistible contraction of tissue results much more certainly than, *cæteris paribus*, where, from the careful treatment of the wound, the process of repair has been accomplished without much local disturbance, or without intense vascular congestion in the granulations, and, possibly, abundant secretion of pus.

In fact, our treatment of scalds and burns must be

* ℞. Resinæ flavæ, ℥iv; Ceræ flavæ, ℥xx (in winter, ℥x); Olei Olivæ, f℥xx (in winter, f℥xxx); Terebinth. Chiæ, ℥viij; Picis Burgund., ℥iv; Zinci Oxidi, ℥iv; Acid. Carbolic. puri (Calvert's liquid), f℥j. Misce, fiat unguentum.

conducted in obedience to the laws which regulate the avoidance of septic changes in wounds in general, by whatever cause produced; and we know that this state of things may be secured by various means, and it is not right to limit our application of the antiseptic treatment of wounds to the exclusive use of the many preparations of carbolic acid.

It has often been noticed by those who are earnest followers of true Listerism, that in their amputation-wounds, and those occasioned by the removal of tumours, the resulting cicatrices are much more pliable and elastic than after other dressings; and my own observations on the progress of scalds and burns when so treated, is quite in accordance with such remarks.

As to the mechanical means by which we may avert the tendency which cicatrices following scalds and burns constantly exhibit to produce permanent deformity by contraction of tissue, I believe there is one cause in action which, if admitted, will guide our treatment under such circumstances. It is the habitual position assumed by the body during sleep, in children especially. In a child, this means of course the posture of the body in at least one-third part of the twenty-four hours. It is best observed in the limbs. If the back of the arm or fore-arm be the seat of the future cicatrix, it will, by the naturally flexed position of the limbs in sleep, be submitted every night to a certain amount of extension or stretching; and here an apparatus may hardly be needful; but with an equal extent of injured surface on the palm of hand, or front of fore-arm and arm, the parts would be so circumstanced during the hours of repose as to facilitate contraction, which we must therefore carefully correct by the use of some extending apparatus at that particular time. The same in the cicatrix resulting from a scald or

burn beneath the chin, for example, or on the front of the neck. It is rarely that we see a child in the attitude of sleep with the head thrown back and the neck extended. Far more frequently the neck is bent and the chin rests on the front of the chest.

Here much may be done by the patient wearing at night a collar of leather, or a stiff bandage, on which the chin can rest, and the structures in front of the neck be restrained from undue contraction. It may be prudent in such a case, to wear the collar constantly day and night; but if relaxation from this is permitted, it is in the night-time rather than the day that its use will be found to be the more urgently required.

Before I leave the subject of the primary treatment of burns, I must mention a means of diminishing the constant tendency exhibited by newly-formed fibrous tissue to contract and thus distort the part, which I believe will often prove successful. It is as soon as cicatrization is completed, to apply to the yet tender surface, a weak mercurial ointment in some of its forms—the mild mercurial ointment, or the ointment of the ammonio-chloride of mercury. I have reason to think that in cases of burns on the hand and fingers, this treatment, persevered in for some weeks, has caused the resulting cicatrix to be more yielding to gradual extension, and less firm and rigid.

I will now relate my experience of the success attending the early treatment of two very frequent diseases of the skin of the face, lupus and epithelioma. Practically, if early seen, and the true nature is suspected, the local treatment, I take it, should be identical for both. For lupus attacking the nose and the skin of the upper lip near to it, scraping by a Volkmann's spoon, so as to remove every particle of diseased tissue, and a fair amount, beneath and around, has so often proved successful that I have

thought my diagnosis was at fault, and that I dealt rather with some low form of ulcerative action than with truly destructive lupoid disease. But where the patch of ulceration is smaller, less diffuse, and spreads less rapidly than in lupus, and the disease attacks a patient after the middle period of life, then anticipating a more positively epithelial proclivity, I have found no treatment so good as the use of escharotics, and of these, none so generally efficient as the *potassa fusa.* I know how much the chloride of zinc and the acid nitrate of mercury have been used, and advocated on great authority; but my attention was first drawn to the superiority of *potassa fusa* by the late Sir Erasmus Wilson, very many years ago. It does its work less painfully and more quickly, and leaves behind it a softer and more pliable cicatrix than follows the application of any other caustic. There is only this one condition for its safe and certain use. The part acted upon must be thoroughly dried, and kept perfectly dry as soon as the corroding action of the salt has been completed. A small piece of *potassa fusa* is melted in a porcelain spoon over a spirit-lamp; the end of a probe, itself previously warmed in the flame, is dipped into the fused salt, and twisted round until, as it cools, it encases and coats the bulbous extremity of the probe.

The surface to be destroyed is gently rubbed with the probe so coated until, after a few minutes, it assumes a brownish, burnt-like appearance; and while this is going on, if by chance too much fluid is formed by the liquefaction of the dissolved tissues in the strong alkaline solution so produced, great care must be taken to absorb, with pieces of white blotting-paper, or fine filtering paper, all this fluid, lest it trickle down and act corrosively on the surrounding skin, beyond the limits already designed. It is a little difficult to define how deeply or how widely the caustic

should be applied, but I might suggest that its action, with all our care, is apt to extend a little further circumferentially than its immediate effect would indicate, so that allowance must be made for this contingency. As soon as the caustic action ceases, the next important element of treatment commences; that is, the thorough drying of the surface with the strictest attention to this particular. It is from not taking pains to dry the part afterwards that *potassa fusa* has lost its repute as an escharotic. The way to secure this drying action is by the liberal use of strips of bibulous paper, applied at first around the margin of the space; and, as moisture ceases to exude, at the end, it may be, of twenty or thirty minutes, to touch repeatedly the central part, until the surface has been rendered absolutely dry. If needful, longer time must be given to secure this indispensable condition. So little pain, if any, accompanies the use of *potassa fusa* as a caustic, that it is very easy to get the patient himself to persevere in the application of the strips of paper, until absolute dryness is attained. One of the first cases in which I used *potassa fusa* as an escharotic, was in the removal of a hair-mole from the side of the face in a young woman, who came as an out-patient to our Infirmary, a long way from the country. I removed the mole by rubbing the caustic over it in the way I have described, and she did not leave until, as I thought, the surface was completely dry. I did not, however, tell her to test this by repeated applications of paper for some hours afterwards, lest, more serum being secreted, it might carry with it some of the free caustic, and so injure the surrounding skin. The crust or scab which formed over the original site of the mole remained dry and adherent for several days; it peeled off, and a good cicatrizing surface was exposed, which shortly healed and left a very soft, pale scar.

But, running down from it on the cheek for nearly an inch, the highly alkaline serum which escaped from beneath the scab had produced a mark which remained red and conspicuous for many weeks after the entire healing of the mole-mark itself. This case taught me a lesson the value of which I am anxious to impress upon others, for with strict observance of this point of thoroughly drying the surface after the use of *potassa fusa*, it will be found, I believe, the most effective destroyer of early epithelial growths.

I will now speak of nævi on the face, as found in infants and very young children, and the treatment I would recommend. I cannot here deal with large nævi in this region, because they require more energetic measures for their arrest or cure than I have now to offer. It is rather to suggest a line of treatment so simple in principle that all may resort to it, and thus, as soon as ever a tendency to grow is exhibited by these marks, something should be attempted, and that efficiently, to check their advance. I will say nothing as to the possibility of atrophy of these deformities by degeneration. No doubt it does occur, and some remarkable cases are on record in proof of this, and possibly a tendency to atrophy may be excited by early treatment, and be one of the chief factors in obtaining, by simple means, permanently good results.

The two means of cure on which I rely for small nævi on the face, neck, and neighbouring parts are vaccination and, failing this, the needle cautery. To vaccinate over the nævus, as well as to vaccinate the child in three or four spots on the arm, is excellent practice where it can be done.

It is prudent to vaccinate the patient on the arm as well as over the nævus, that we may watch, in the usual way,

the progress of the local changes there occurring, and reason therefrom how far constitutional results may follow. We vaccinate over the nævus, to set up in the skin and the tissues beneath, inflammatory action and effusion of lymph, which by its contraction shall strangle the arterioles and capillaries of the growth, and restore the vascularity of the part to its normal state. I have had some very successful cases, but many of them at first—that is, for months after the operation—were disappointing in their progress. The effects of vaccinating a nævus are very gradual. At first the redness of the part seems to be the harbinger of ill, and to forebode a return of all the trouble. But it is well to know that if the action—that is, the pustulation with its attendant inflammation—is well established, sooner or later contraction will follow; and with this peculiarity, that, as we see in the ordinary vaccination, although the cicatrix or mark is very conspicuous for some years, it has a tendency to fade away, I presume, by the very slow absorption of the effused lymph-bands within it. This occurred to me with a large nævus on the upper eyelid and brow of a boy nearly four years old, who had never been vaccinated, and in whom for months after vaccination over the nævus, the part remained red and swollen, and then at last slowly contracted. When he was eight years old, it left so little trace of deformity that it was hardly possible to say on which side of the face it had existed.

After this operation, however, it is very desirable to preserve as anhydrous a state of the vaccinated surface as possible. The only case among many which gave me much trouble in the primary stage of treatment by vaccination, was in a very young infant with a large veno-cutaneous nævus beneath the chin. I vaccinated it liberally; an abundant crop of pustules formed, which

by neglect in nursing were allowed to get wet and sodden by the saliva dribbling from the mouth; and the whole became one large suppurating surface, to the child's great distress. Yet as time went on, the surface healed, and I have been assured, quite recently, by the medical man who had charge of the case that no scar whatever now exists, and the skin is as healthy there as in the surrounding parts. In vaccinating over a nævus I much prefer to use a vaccinating pen rather than a lancet, to tattoo the

EXACT SIZE.

part with the vaccine lymph, taken if possible, direct from the arm of a healthy child, and I regulate the depth of the punctures by the weight of the pen allowed to fall on the part from a short distance, so as just to penetrate the epidermic layer, and yet, if possible, not cause bleeding.

The other method which I have to suggest for dealing with small and early nævi, where vaccination has already been performed, is by the use of the needle-cautery. The same thing can be done with a galvano-needle puncture; but, as I am anxious here to show simple rather than complex means of cure in surgical disease, it is more easy to employ for the obliteration of nævi, needles of the ordinary form, heated to redness in a spirit-flame, than the galvano-puncture, which can hardly be said to possess any superiority on the score of special blood-coagulating power, apart from the heat of the needle itself. To make this more intense and more constant, I fix on each needle a small sphere of steel, which is placed some distance from the point, Plate I., Figs. D D. While the needle is being heated, the steel ball also becomes hot, and acts as a reservoir of heat, by which the needle does not so quickly become

cooled, or if it has to be again heated by the flame, this can be done more rapidly. There was a difficulty at first in the use of needles so heated which made me think them less suitable than the galvano puncture, and that was their liability to become oxidised when hot, and so to form flakes of black oxide of iron on the surface, which, when the needle was again introduced into the part, were separated by contact with the skin, and produced a black or dark-coloured ring. I overcome this, however, by rubbing the needle in emery-dust from time to time before its re-introduction. The number of the punctures, their position and direction, must all depend upon the extent and depth of the nævus. It is better to make too many than too few, so as to have as many lines of contraction as possible along the surfaces so burned. It is not necessary, I find, to carry the needle completely through the nævus from one side to the other, but rather to direct each line of puncture from the periphery in a converging direction towards the centre of the nævus, and then to make a few punctures perpendicularly to the surface through the thickness of the nævus. There is rarely any hæmorrhage from the punctures if the needle is not too hastily withdrawn. It should be held steadily in the exact position in which it was introduced until it is evident that all the redness has ceased, when it must be slowly removed by a very gently rotatory movement, and very gradually. If, in spite of all our care, some of the punctures give trouble, and slight oozing of arterial blood follows the removal of the needle, it may be re-warmed, introduced a second time through the opening, and there held until, by a lower heat, it seals more effectually the bleeding points. Or, if the oozing should be specially difficult of control, I make use of styptic discs, formed by soaking bibulous paper in a strong alcoholic solution

of tannin, 45 grs. to each fluid drachm of absolute alcohol, and allowing it to dry. The paper thus prepared, cut into pieces of convenient size, one or two of them being placed over the nævus, and fixed by gentle pressure, will certainly stop the bleeding if only of an oozing nature. These tannin discs are exceedingly useful, and for more trivial accidents, as in a razor-cut in shaving or in arresting the bleeding from a leech-bite, which are at times troublesome to deal with, I much prefer them to the perchloride of iron. Tannin is more cleanly to use, and does not excite any ulceration of the part, as the iron salt is apt to do on a tender surface. There is this practical advantage in the tannin discs; they are not at all hygrometric or deliquescent, so they are always ready for use and of constant strength. Theoretically, the hot needle acts upon principles similar to vaccination in destroying nævi or arresting their growth. The effects of the needle-cautery on nævi are not immediately apparent, yet the action, I have noticed, is more rapid and direct than when vaccination has been employed. The cicatrix from vaccination may, by lapse of time, be less conspicuous than that from the needle-cautery, but of this I am not quite positive, yet by one or both of these methods we may generally succeed in the treatment of small recent nævi.

While speaking of deformities of the face, I would refer to one which is not congenital in its origin, and is seen more frequently in the adult than in the child—that is, chronic fissure of the lip. It is usually found on the lower lip, in the centre of the prolabium, and is not only unsightly and painful to the subject of it, but is peculiarly hurtful to one of a joyful or hilarious temperament, for it frequently cracks, and perhaps bleeds, when the sufferer indulges in laughter and the like. It is very generally associated in some way with disordered digestion, and may possibly be

one expression of an eczematous tendency, and itself a manifestation of eczema fissum. It may, on such principles, be controllable, if not curable, by constitutional and dietetic means. But it is to the local treatment in very troublesome cases that I wish now to invite your attention. The first time I adopted it was experimentally, but it succeeded so well that I have constantly recommended it in other instances. The case was that of a young lady who had suffered from fissure of the lower lip—I might almost say for years—disappearing and returning from time to time without known cause, and as she was about to be present at some fashionable assembly, where personal appearance was a cardinal point of interest, she consulted me about it a few days previously, anxiously seeking for some immediate remedy. I told her I could offer only one method, which I knew would seem to be severe, and might be painful for the instant. It was to incise the part, as I told her, to make it bleed for a few moments, and then perhaps it would quickly heal. With a thin and very sharp scalpel, drawing it along the fissure, I cut into the substance of the submucous tissue and fibres of the orbicularis muscle for rather more than an eighth of an inch. The bleeding, which was free, was encouraged by bathing with warm water, and when it ceased nothing was applied beyond an occasional touch of a handkerchief. Yet within twenty-four hours, by the perfect rest thus given to muscular tension in the part, the incision had united perfectly. No trace of crack or fissure could be seen; my patient was not a little delighted, and went to the party quite happily.

On the subject of hare-lip, I wish to speak only of the more simple cases, in which none of those graver complications and deformities are present which render operations for the relief of such defects some of the triumphs of

plastic surgery. My remarks will have reference to cases in which the fissure exists on one side only of the mesial line of the lip, and does not penetrate far upwards into the depth or breadth of the lip—such a case as any tyro in surgery might undertake to treat without the slighest hesitation; and yet such cases, if sought for and watched carefully, years afterwards as the child grows up, will often disappoint the operator by the reappearance of the notch as the lip developes in the general progress of growth. Two causes, I have noted, conspire to this untoward result. The comparative thickness of the extreme edge of the two sides of the fissure is rarely equal, so that the lip on one side of the resulting cicatrix will be thinner and less actively nourished than the other. And as soon as union is effected after the operation, there will be a tendency in the lineal cicatrix so formed to undergo contraction in a longitudinal direction—that is, upwards towards the nostril. Thus, year by year, from one or both of these causes, an unsightly and conspicuous notch will be formed. To avoid this, I often adopt the following device. In paring the edges of the cleft in the lip, I remove, as far as possible, so much of the edge of the thinner piece as to reach a part of the lip nearly equal in thickness to the other side. In doing this, I refresh this edge at the expense of its mucous, rather than its cutaneous surface, the thicker edge being refreshed in the opposite direction at the expense of the skin surface. Thus, instead of two squared edges being brought into contact, part of the edge of the thicker arm of the cleft lies behind or beneath the thinner, to pack it up and help to thicken it. Then I so refresh the extreme edge of the lesser arm of the cleft, as to affix to it some of the prolabial portion of the other side, crossing the extreme lower end of the cleft, and here for the time producing a very distinct nodule or projection of mucous

tissue. This, I confess, produces a very ugly appearance, not only as soon as the parts are brought together, but for a very long time afterwards. If the friends of the patient protest against the unsightliness of this nodule of mucous tissue projecting on the centre of the prolabium, I endeavour to allay their fears by assuring them that if it should become permanent, it can at any time be sliced off, so as to make the whole surface level.

But in a number of cases which I have watched for more than a year, and in one case for four years after the operation, this nodule of mucous tissue remained projecting in a diminishing degree, and served as a means of blocking up what would otherwise have been a depression in the edge of the lip by the upward lineal contraction of the cicatrix itself. The plan, therefore, consists mainly in leaving untouched this mucous tubercle, and being content to have an abnormal fulness or projection at this part, which in nearly all of the cases I have seen so managed, never requires to be cut off, but in twelve or eighteen months slowly contracts to its proper level. I do not employ pins, except during the operation, and until the sutures have been duly fixed. Then the pins are removed, and I place some fine sutures within the mouth on the mucous surface, to fix the inner flap. To keep the surface as dry as possible on its cutaneous aspect, is the only mode of after-dressing which I have ever found needful.

From hare-lip one passes on naturally to the study of cleft palate and its general treatment. There are a few remarks which I desire to make while passing this subject hastily in review. The cases most favourable in my experience for closure of the hard palate in childhood or in adolescence, are those in which the bony arch of the palate is high and narrow as compared with cases in which it is flat and broad; and in spite of the clever procedure

of Sir William Ferguson to crush in the bony roof of the palate on either side towards the fissure, and so diminish its width, yet the flaps of fibro-mucous membrane which have been detached from it, fall together much more easily, and can more readily be brought into contact from a high, than from a flat or low palate. With regard to the suturing of the sides of a cleft of the soft palate, and the importance of not drawing the sutures too tightly, it has always seemed to me that while this was objectionable, from the chance of its producing a strangulation of the part and ulceration of the suture-holes by undue pressure, yet there was another fact to be observed in it of equal importance.

We know on the surface of the body, where all is clear and visible, how apt we are in tightening up our sutures to disarrange the relative position of the edges of the wound, and to find that here and there, between the sutures, there is inversion of the skin, by which two epidermic surfaces, coming into contact, union is impossible. This may be due either to tying too tightly, or to mal-apposition. Now, a similar condition occurs often in the adjustment of the two sides of the refreshed fissure of the soft palate in tying the sutures. What we chiefly require is the direct apposition of the cut surfaces on the edges of the cleft. What we often have, by misadventure, is an inversion at one or more points of the mucous aspect which then lies surface to surface, and can never unite. An adept at this operation will rarely do this. He avoids it instinctively, perhaps without knowing it. But the occasional operator, or he who has not had much operative experience, will often find that the edges of the cleft which he has carefully refreshed, and which he fairly hopes will unite, cannot do so for the reason I have stated. We owe very much to Sir Spencer Wells for his valuable discovery of the readiness with

which the surfaces, and not the edges, of a divided serous membrane will unite by plastic lymph in an incredibly short time. The same distinguished operator has also shown us that mucous surfaces, when so circumstanced, conduct themselves quite differently. Here the surfaces, when in contact, will not unite, but the cut edges will. So that careful attention to this little matter may prove to be one of the turn-points of success.

Lastly, for those whose experience in this operation is not very great, and who desire to secure by every means, the greatest amount of rest for the sutured palate, as well as rapid union, and to diminish the tension on the opposed edges of the wound, the most simple and the best of all the different methods is that practised by Mr. Bryant, which consists in making an incision into the pendulous palate, by scissors or otherwise, nearly parallel to each side of the proposed line of union. The first time I did this it was with great hesitation, as I could not see at the moment how nature could be equal to the demand made upon her to unite the sutured edges of the cleft, as well as to close up the gaping notches which I had made on either side of it. But a very little thought convinced me that I had nothing to fear. My case did well, and I had no trouble with my lateral gaps. I called to mind another operation in which an incision is made very similar in its relations to those in the sides of the soft palate. Only it is designed with the object of permanently separating two surfaces, and it invariably fails to do so, unless certain precautions have been taken. I recollected that with an ordinary incision to divide congenital webbing of the fingers, it is impossible to prevent re-union; the cut so made will close up at the converging angle of the wound, however much we may try to prevent it by separating the fingers; and so with the incisions into the palate, they

never fail to close slowly yet surely, and at a stage of the healing process subsequent to that of the union of the central wound.

Whilst speaking of operations on the palate, in which we now rarely hesitate to resort to anæsthetics, let me put in a plea for the administration of chloroform in that simple operation, the excision of the tonsils, particularly in the young. It would almost seem as if, in times past, the influence of fashion had occasionally been at work in surgery as well as in medicine. It must be within the memory of many surgeons, that there was a time when enlarged tonsils were always to be removed, and long uvulæ always to be shortened, the possible evils resulting from either condition being no doubt greatly exaggerated. It is to be hoped that we now have clearer and sounder notions as to when either of these operations is actually required. As to abscission of the uvula, or a portion of one tonsil, the operation being done very quickly, and by one act, an anæsthetic may be dispensed with. But in the case of a child, say of five to eight years of age, with two large tonsils, so large as to impede respiration, and thus check the full development of the chest and the proportionate expansion of the lungs, in harmony with the height and growth of the body, I am sure it is the proper thing to place the child under the influence of an anæsthetic, so that we may remove more deliberately and precisely the requisite quantity of tonsil structure, and without terror and distress to a patient of such tender age. It is curious to note how very slightly some children suffer in the act of deglutition from the presence of immensely enlarged tonsils. It is the respiratory tract which is the far more frequently incommoded by their presence.

The occasional accident of swallowing artificial teeth, the plate supporting them no longer fitting the gums from

absorption of the alveoli, and so becoming loose in the mouth, is apt to produce serious symptoms, in reference to which I would now say a few words. I have two cases which illustrate these points practically. A young man, in a very responsible situation as clerk to a solicitor, had worn in the upper jaw, for some years, until it no longer fitted the gum, a small gold plate, supporting three or four artificial teeth. One night he woke suddenly, and finding that the plate had slipped, he believed that he had swallowed it. In his distress a surgeon was sent for, who, after passing his finger into the pharynx, felt the edge of the plate, and tried to withdraw it by the forceps; this failing after many attempts, he pushed what he believed was the plate down into the œsophagus, and thus by a bougie into the stomach. The next day I was consulted on the case, and as there was no difficulty in swallowing, I contented myself with recommending careful dieting, the use of large quantities of porridge and other bulky farinaceous food, so as to facilitate the passage of the foreign body through the intestines, the rate of transit not being in any way accelerated by the use of aperients, which were strictly forbidden. This plan was very carefully followed. Every effort was made, by the most scrupulous inspection of the excreta, to find the gold plate, but although this was done for many months, the patient being extremely frightened about its non-appearance, at last the search was discontinued. He resided some distance from Manchester, and I heard nothing of him for rather more than two years from the time of the accident. I then received a message to say that after repeated attacks of pleurisy and broncho-pneumonia, he died suddenly, and it had been his own wish, as well as that of his friends, that I should inspect the body, and clear up the mystery as to what had become of the teeth. Accordingly, I went to

the house, and made a prolonged post-mortem examination in the presence of the surgeon who had attended him almost continuously from the night of the accident. As there had never been any urgent dysphagia, I proceeded to open the abdomen, and to trace the course of the intestines from below upwards. In the rectum, sigmoid flexure, cæcum and appendix, the large and small intestines, and the stomach itself, all which parts were thoroughly examined, no teeth could be found. Having carefully examined the lungs and heart, and noted the disorganized condition of the former, I laid open the œsophagus from where the stomach had been cut away along its entire length, until I entered the pharynx from below. No sooner had I done this, and introduced my finger from below upwards into the mouth, than I exclaimed to my friend, "Here they are, lodged firmly on the front of the pharynx, below the tongue! I can feel the two ends of the narrow plate quite smooth and firm!" Alas, my diagnosis was at fault. It was not the plate at all. It was the two cornua of the *os hyoides*, felt from within the pharynx, which had thus deceived me. More minute inspection with the finger, both when introduced through the mouth and carried well backwards and downwards, and then curled forwards; and when passed upwards along the œsophagus, gave quite the impression to the touch of the presence of a foreign body with smooth firm edges. We never found the teeth, and no one knows where or how they went. But I learned a fact of some value, which has served me well on other occasions. For it was not very long afterwards that in our accident-room at the hospital I found one of the house-surgeons with forceps in hand, and the finger resting on the pharynx, trying to grasp what he thought was a tooth, or the corner of an artificial plate, in the throat of a young woman who

was said to have swallowed such a substance; and I was then able to convince him by defining the two cornua, one on each side, with a space between, and also their relations to the larynx, that within this living subject I had met again this *ignis fatuus* of the cornua of the hyoid bone.

One word more, and I will pass on to the last subject of to-day's lecture. In all cases of asserted swallowing of artificial teeth and the plate which supports them, be sure that you can depend upon the declaration of the patient, and that they really have been so swallowed, for the sensation of their changed position in the mouth may be emotional or imaginary, as this case will show.

On visiting our Infirmary one morning, I was told that soon after midnight a case of swallowed teeth had been admitted, although not into one of my wards. It was placed, if I remember rightly, under the care of my colleague, the late Mr. Dumville. It was a young married woman who had worn artificial front teeth for some years, and the plate had become loose, as such plates are apt to do. She had gone to bed as usual, and awoke suddenly after her first sleep, crying out that she had swallowed her teeth and could feel them fixed in the throat, and could hardly breathe, and she should die. Her husband got up immediately, hired a cab, and brought her to the hospital, where she arrived about two a.m. The house-surgeon on duty passed his finger into the throat, felt what he supposed was the edge of the plate, or the end of a tooth, and applied the forceps with all due energy, producing some hæmorrhage, from injury to the mucous membrane. He thought he had dislodged the teeth; he passed a large bougie into the stomach, and the patient was somewhat relieved. When I saw her the next morning, she was sitting up in bed, having a very anxious countenance, fearing every moment the return of the spasmodic dyspnœa,

but yet able to swallow fluids and soft solids, though with a great deal of pain, no doubt from the instrumental proceedings to which she had been subjected. She remained in much the same state the whole of the day. She spoke only in a whisper, and remained nervously excitable in spite of the use of sedatives and the like. The next morning I visited her with Mr. Dumville, if I remember, about ten a.m., which would therefore be about thirty-two hours after her admission. We were discussing how we could best diet her and watch the case, so as to trace the expulsion of the teeth, when suddenly her husband rushed upstairs into the ward, in the greatest agitation, saying they had found the teeth! She had never swallowed them; for he told us that only a short time previously, on moving a looking-glass on the dressing-table in her bedroom, there were the artificial teeth, plate and all! It was quite evident she had taken them out as usual at night to clean them; they had slipped under the frame of the looking-glass; she had got into bed without them, and fallen asleep, never discovering what she had done, and becoming conscious only of the mistake when she awoke suddenly in the night, and no doubt by some rapid movement of the tongue, in an otherwise empty mouth, became the subject of an irresistible erroneous impression. It is well, therefore, always to be certain that the circumstances of an accident are truthfully narrated.

We ought occasionally thus to place on record our mistakes and failures, for by these we often learn more than by success. In the former, difficulty has still to be contended with; in the latter, it has been overcome.

The last subject upon which I wish to speak to you to-day is the operation for the removal of the tongue. And as it will be impossible for me to treat of it in all its aspects, I must needs confine my remarks to only a few of

the points of interest connected with it. First, as to the diagnosis of the disease for which the operation has to be practised, and next as to its mode of performance. I cannot conceive the possibility of more than two conditions under which this very formidable and serious operation would be undertaken; and they are either chronic or subacute enlargement of the tongue, macroglossia, or the early advent of malignant disease. I say "early advent," because it can only be at that stage of the disease that the removal of the tongue is justifiable, unless in very exceptional cases, where from intense pain, and perhaps from the size of the diseased growth, it might be resorted to as a palliative measure.

Severe pain in this complaint can generally be relieved, if not removed, by section of the gustatory nerve. It is a procedure which may be regarded, with great propriety, as the rule of practice for this special symptom. But, as to the malignancy: where the case has advanced so far that the glands are affected, we can never be positive whether this state is occasioned by simple congestion, irritation, or infiltration with secondary malignant deposit. If the glands are enlarged from the latter cause, although we remove the entire tongue, little benefit ultimately results, seeing that here, as with other malignant growths and secondary gland complication, unless the glands themselves are removed at the time of the operation, they increase in size more rapidly afterwards than they would have done if the primary growth itself had not been touched.

It is only in the pre-glandular stage that I have seen good permanent results from the removal of the entire tongue. We may fail to find the enlarged glands if their natural size is not much augmented. They may not be perceptible to the touch when examined externally, either

at the side, or somewhere below the chin. But by placing one finger within the mouth beneath the tongue on the floor of the cavity, and a finger of the other hand opposite to it on the skin, a diseased condition of the gland may be detected which would otherwise have been easily overlooked. Yet I think in doubtful cases the best method of investigation is to slice off a portion of the growth, examine it microscopically, and let the histological evidence thus obtained decide its true nature, which the naked eye could never discover.

In respect to the particular operation which we should select, according as the removal of the tongue is to be partial or complete, and the mode of its performance, I can only say I still adhere to the remarks made in my little monograph on the removal of the entire tongue,* in which I advocate the method suggested by Mr. Walter Whitehead, and greatly simplified in his hands. In this as in many other operations, the principle upon which it is to be conducted having been admitted, next come the details, and these, as laid down by him, should be religiously adhered to.

This is an operation which, more than most others, must be done slowly and with deliberation; each stage or step should be completed before the next is entered upon. And then it will be found to be an operation in the performance of which, to use the words of Hilton, it may truly be said, "Confiding in your anatomy, you have nothing to fear."

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*"On the Removal of the Entire Tongue by the Walter Whitehead Method" (1880).

LECTURE II.

ON SOME OF THE INJURIES AND DISEASES OF THE BLADDER AND GENITO-URINARY ORGANS.

IF there is one condition of the bladder which will give a surgeon annoyance and distress, it is when he discovers, either from some fault of his own, from neglect in nursing, or from ignorance of those in attendance on the patient, that he has to deal with a case of extreme distension with overflow, which has been overlooked.

I will relate three cases which have occurred to me, and which will illustrate such a possible mistake and its consequences.

Some years ago a medical practitioner whom I knew very well, as very observant and attentive in his practice, called upon me to arrange a consultation with this object. He said a young lady was the subject of acute peritonitis, and that he feared ascites had supervened, and, as she was much inconvenienced by the distension of the abdomen, paracentesis would be required for her relief. He told me that he had been called to see her about five days previously, when he found her in a feverish condition, in great pain, and the abdomen intolerant of pressure. She

had on the previous day been at a pic-nic party in the country, and might have sat upon damp grass, or in some way received a chill or cold. He had collected some of her urine, which now passed away from her involuntarily, and found it slightly albuminous; and he concluded that she was the subject of chronic renal disease, and that this might account for the rapid effusion of serum into the peritoneal cavity. I therefore went to the house with all the necessary appliances for tapping the abdomen. I found the abdomen much distended, and, to all appearance, equally so in all its diameters; and I noted that poultices were still applied to the surface, which was abundantly covered with the bites of leeches, which had been freely used. On placing my hand upon the abdomen I was horrified to feel what for the moment I thought might be the outline of a distended uterus in the last month of gestation, and that we had before us a case of concealed pregnancy in an advanced stage. The needful inquiries as to the catamenia soon disposed of that possibility, and I then asked as to the passage of the urine. I was told there had been difficulty in micturition for some days, and even when first seized in the night with rigors and other symptoms of distress, there was difficulty in passing water, and the urine was voided frequently and in small quantities. I suggested that I should use the catheter as a preliminary means of diagnosis. Fortunately I had with me a female catheter, which with some difficulty I passed into the bladder, and then commenced an outflow of urine, which did not cease until seven pints of dark-coloured and slightly ammoniacal fluid had been removed. All the swelling, I need not say, quietly subsided, and the patient was immensely relieved. But there was another side of the picture. The mother of the young lady was present in the room and saw exactly what had occurred, and it

required all my ingenuity, in tracing the relation of cause and effect, to shield my friend from the open accusation that he ought to have done the same thing himself, and that there had never been any peritonitis, but only from the commencement, spasmodic retention of urine, caused perhaps by exposure to cold, and paresis of the bladder from over-distension. I heard no more of the case, except that the patient quickly got well.

My next case was rather more complicated. I was asked to go some distance into the country to see what was said to be a tumour in the pelvis pressing upon the rectum, and causing some abnormal symptoms. The patient, a man of unhealthy aspect, was about sixty years of age, and had suffered from pain in the back, and difficulty in defecation for many months, and recently he had had what, I was told, seemed to be dysentery, much rectal tenesmus, and the passage only of mucus, with which pus seemed to be mixed; and on one occasion, a few days before my visit, the pus was so much in excess of the mucus, it was thought an abscess might have formed and burst into the bowel. The surgeon in attendance had attempted to make a rectal examination with the finger, but the pain to the patient was so great he desisted, and this caused him to think that the abscess theory was correct. But there was a peculiar feature in the case, to which we could not but attach great importance. The patient had been under observation for about three weeks. At the end of the first week, that is about a fortnight before I was called to see him, it was discovered that he had a swelling on the left side of the pelvis, which could easily be felt externally, and which had slowly increased in size, more on the left than on the right side. It was painful on pressure, and the point on which my opinion was asked was as to its true nature, seeing that it had become larger

from day to day, like a rapidly growing tumour, possibly cystic, possibly malignant. It was quite fixed, and so tender on pressure that the existence of a pelvic abscess, starting near the rectum and side of bladder, was still open to discussion. On inquiry as to the passage of the urine, it was admitted that for a very long time, far beyond the date of the present illness, he had just that delay and difficulty in micturition which attends upon enlarged prostate in a man of his age, but there was no more difficulty in this respect than there had been previously, except that an attempt to void the urine brought on the rectal tenesmus. I was shown a quantity of urine which he had passed in the last twelve hours, and I could detect nothing in its physical condition suggestive of bladder complication. Still I thought it best to pass a catheter to be sure on this point, for I was told this had not been done because the disturbance seemed to originate chiefly in the rectum. I had not with me a prostatic catheter, but only the ordinary screw-up silver catheter which is carried in a pocket-case, and this I much regretted, as I was some distance in the country, several miles from where a prostatic catheter could be procured. However, with great care and gentleness I passed the instrument, and drew off nearly a quart of urine, feebly acid, but decidedly not alkaline nor ammoniacal; and, as I did this, the one-sided tumour in the pelvis entirely disappeared. I could then pass my finger into the rectum, and found the prostate gland swollen and tender, but not unusually so. It projected into the rectum so as to form an obstacle to the descent of much hard feculent matter collected above it. The true nature of the pelvic swelling being thus disclosed, the after-treatment of the case was not difficult. The condition of the bladder was watched, the catheter was passed occasionally to test the presence of retained urine, the movements of the

bowels were so regulated as to prevent undue accumulation of hardened fæces, and all the more urgent symptoms were permanently disposed of.

The third case I have to mention was much more acute in its manifestations, and they also were such as naturally to divert from, rather than to direct attention to, their true cause. A gentleman, also about sixty years of age, a foreigner, who could not describe his symptoms very clearly in the English language, was on a certain day at work writing, or talking, in his office, when he was seized suddenly with vertigo, and afterwards with rigors, followed by profuse perspiration. He explained that lately he had often had rigors and perspiration, but it was the dizziness and almost temporary, or very evanescent, loss of consciousness which had now alarmed him. He was very stout, and of full habit of body, and it was therefore feared that he might be in danger of some cerebral symptoms of a serious nature. He was taken home, and a physician was sent for. Soon after the patient reached home and was put into bed, he was very sick, and vomited a good deal, and either from this cause, or from general distension of the abdomen, he had severe pain in each groin. The doctor in attendance, fearing the presence of hernia, sought my assistance. I soon decided, in spite of his stoutness, that none of the ordinary forms of external hernia were present, and immediately began to inquire as to the condition of his bladder. I was told he had passed an unusually large quantity of urine, as was his habit, although he had lately had increasing difficulty in so doing; that is to say, the act was unusually prolonged, but yet with a small stream, he managed to evacuate great quantities of urine. In fact, I was shown so large a quantity which he had recently passed, that I could only get the medical attendant, also a foreigner, to consent to my passing the catheter that we

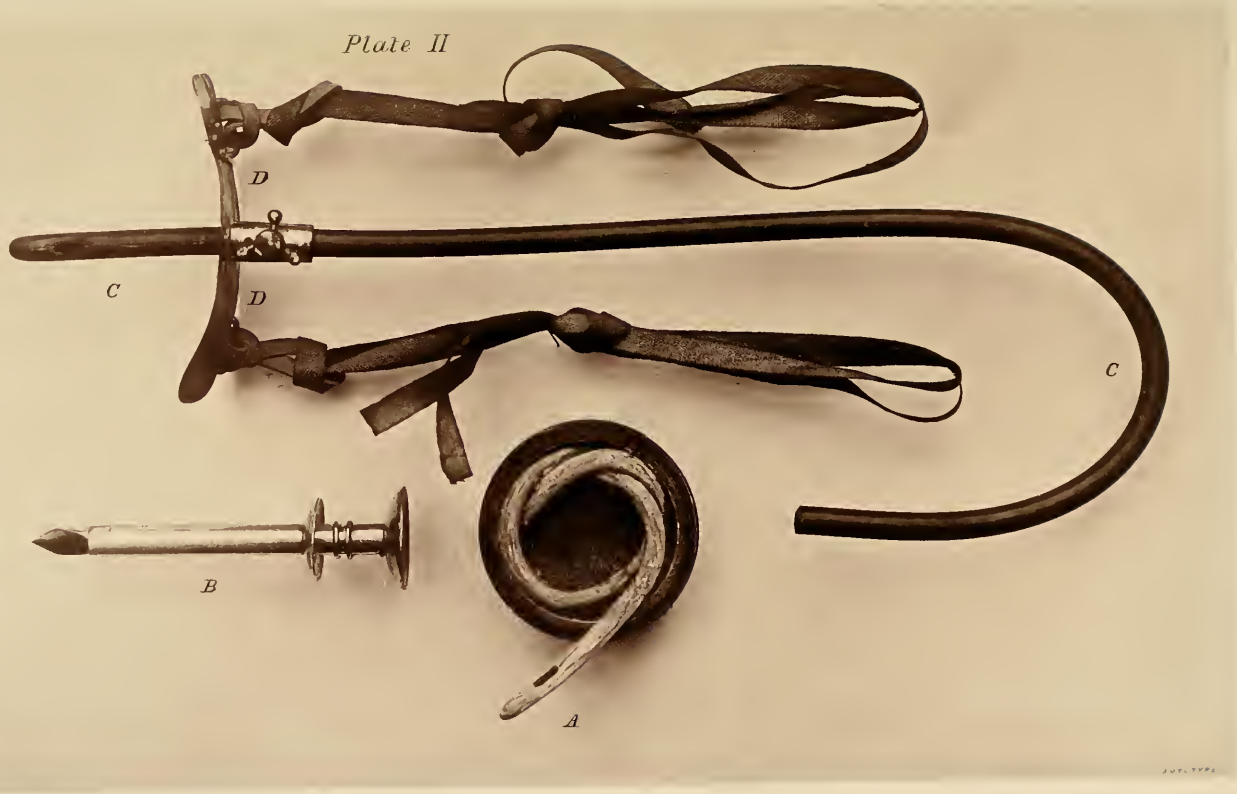
Plate II
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might have the contested point finally settled, for I could not pledge myself that any considerable amount of urine was retained, since by reason of the obesity, neither percussion nor palpation over the bladder yielded any positive signs. However, from the previous case I had learnt experience. I now had with me a vulcanized india-rubber catheter, which I had made a part, and a very essential part, of my surgical armamentoria. This I passed painlessly into the bladder, and drew therefrom very nearly five pints of urine, that is, an ordinary chamber utensil almost full. The difficulty of breathing, and the feeling of distension immediately subsided, and the patient, by a series of expressions indicative of the deepest gratitude, showed to me how much relief had accrued to him by this simple procedure. The quantity of fluid which he drank, and the quantity of urine which he passed were now carefully watched, yet, in about three days, he was again seized with the same symptoms of rigors, perspiration, etc. I was sent for to relieve the bladder, but on this occasion not so large a quantity of fluid had collected, and, after this, his own attendant repeated the catheterism at shorter and regular intervals, and the patient, by careful nursing, ultimately did well.

It is only those who have long journeys to take for professional purposes, away from the means of help which are ever present in large towns, who can tell the comfort of feeling, when called upon to perform an operation, that they have with them all the requisites for success.

Among things which, when absent and most required, would be most heartily welcome, is an efficient means of emptying an over-distended bladder, in the male patient, when a practitioner is many miles from home. Such an instrument is shown in Plate II., Fig. A., packed up so portably that no surgeon should travel without it.

These cases, you will observe, have been illustrations of distended bladder with overflow; but cases of absolute retention, in which the bladder is full, and no urine can pass, or does pass per urethram, will of necessity require a different line of treatment. I will not stop to speak of spasmodic retention, without or with physical contraction of the urethral canal, but will proceed to say that where, from any cause with a distended bladder, we cannot pass a catheter, the operation of puncture of the bladder must be performed, and it is open to the judgment of the surgeon to decide which particular method he will adopt—puncture per rectum, or puncture above the pubes. From my own experience I incline very decidedly to the latter operation, as it is the more cleanly of the two. You can see so easily what you have to do, and how to do it; and an instrument with suitable appliances, can be much more easily retained in the bladder through the front of the abdomen, than through the bowel where the rectum is liable to be disturbed in the performance of its functions. I have for many years substituted the supra-pubic for the rectal puncture. In either operation it is essential for its safe performance that we should be positively certain the bladder is full. I venture to make this remark because it does sometimes happen that where a patient has suffered from chronic disease of the genito-urinary tract, with previous attacks of retention of urine, for which the catheter has been the relief, a time has come in which he suffers from suppressed secretion; the kidneys have "struck work," as damaged kidneys often will, and there may be little or no urine in the bladder, and yet the absence of its expulsion has been put down to retention in the bladder, whereas all the while it was really caused by non-secretion from the kidneys.

When, however, there is unmistakable and complete distension of the bladder, the operation of puncture above

the pubes is neither dangerous nor difficult. I use for this purpose a trochar and canula of special form, as seen in Plate II., Fig. B., just long enough to secure their entrance into the bladder, and with the cutting end of the trochar so fashioned that it will make a lineal, vertical, and not a triangular cut, which is then stretched into a circular form by the progress of the instrument. The canula is made large enough to permit the passage through it, on the withdrawal of the trochar, of a vulcanized india-rubber tube, Figs. C C, which can lie smoothly in the bladder, and to which we can firmly fix a plate or shield, Figs. D D, moulded to the curvature of the abdominal wall, and there retained by elastic bands. To prove to you how long the bladder will tolerate the presence of such a tube without pain or inconvenience to the patient, in one case, in hospital practice, where the patient was the subject of retention from an extremely fine stricture, the supra-pubic paracentesis was performed for his relief. Five weeks subsequently I performed internal urethrotomy, dilating his urethra up to the capacity of a No. 16 English catheter, the intervening time (during which the india-rubber tube was worn above the pubes) being occupied by dilatation of his urethra, from a condition almost impervious, to one sufficient to permit the passage of the guide-bougie in advance of the urethrotome.

In another case in private practice, in a gentleman with immensely distended bladder, from large swollen prostate, which resisted all attempts at catheterism, I punctured above the pubes, and he wore the tube for thirteen weeks, going to and from his business by railway. Eventually the tube was removed, the resulting fistula closed, and he can now empty his bladder very satisfactorily, although, as a precautionary measure, a flexible catheter is passed occasionally to measure the quantity of retained urine, and

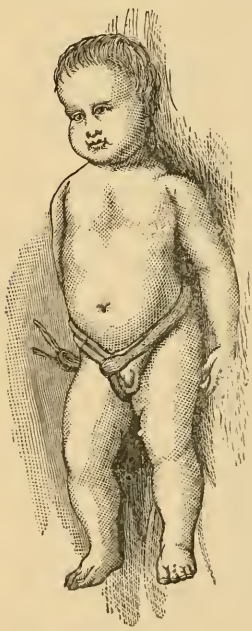
to note how far it preserves its healthy acid reaction. It has been remarked by those who have hesitated to puncture the bladder *per rectum*, that they feared they might leave their patient with a permanent recto-vesical fistula; but the reply has always been that such fear is groundless, the difficulty being, not to secure, but oftener to prevent, the closure of the rectal puncture; for if the tube falls out, it is not easily replaced. The same observation would apply to the supra-pubic puncture. I have done it many, very many, times, and I never knew the resulting fistula fail to heal. The only practical objection I have known urged against supra-pubic puncture of the bladder, is that the opening is not so favourably placed as that *per rectum* for the drainage of the bladder. Assuming that the patient, after the operation, is to remain always upon his back, there is great force in this objection. But with the supra-pubic puncture it is not difficult to set up an arrangement of elastic rubber tubing on the syphon principle, which will drain off the urine so completely as to leave the bladder practically dry. Or, if the patient lies on his side, the drainage can still go on, the instrument being safe from injury. The bladder, moreover, is not punctured near to its most sensitive part, as by the rectal operation, but on its anterior wall, where it is endowed with the least amount of sensitiveness. There is a modification of the rectal operation, where the bladder is entered at the lower and posterior part, which I have performed on two occasions, once with great success, but in the other it failed. The patient sank in a few days from uræmic mischief. There is another more recent method of puncturing the bladder in prostatic retention, recommended by my friend Mr. Reginald Harrison, of Liverpool, in which, without any preliminary incision, he drives a long trochar and canula through the perinæum and the prostate gland, until the

bladder is reached. The canula is then replaced by a silver tube, the latter can be borne easily by the patient, and will form a ready means of emptying the bladder, to his immense relief. I wish to invite attention to this mode of operating, because Mr. Harrison's observations lead to the conclusion that direct puncture of the prostate gland may subsequently induce atrophy and general wasting of that organ, and so ultimately restore to the prostatic portion of the urethra some of its normal capacity. So that as in the case of the gentleman I have already mentioned, the urethral canal, especially in its prostatic portion, being spared for many weeks or months, the incessant irritation of the passing urine, the chronic congestion of the part may subside, and a more free and capacious condition be restored to it. It is the possibility of such a happy result following upon Mr. Harrison's operation that has led me to watch, with great interest, how far extended experience shall confirm this opinion.

Early in life, obstruction to the passage of the urine may be caused by contraction of the orifice of the prepuce. This is liable to increase rather than diminish as the infant grows, from the circumstance that every time the urine is passed a drop or two remains in the space which exists between the glans penis and the prepuce. Here the stagnant urine is apt to undergo ammoniacal changes, and then it inflames the delicate epidermis, which is quickly shed off, and not unfrequently adhesions result between the two surfaces, still further complicating the case. Circumcision in the child, and for the adult, that modified operation for division of the prepuce so well suggested by Mr. Furneaux Jordan, of Birmingham, will at once get rid of any impediment to micturition due to such causes. In an infant, a contracted prepuce, like a strictured urethra in an adult, must cause straining in the evacuation of the bladder. This,

in early life, may lead to inguinal hernia on one or both sides, where the funicular process of the peritoneum has not been firmly closed. It is, therefore, at all times prudent, as a preventive measure, to circumcise a child in whom the prepuce *balloons* out while the urine is passing, as such a condition indicates obstruction to its outflow.

Hernia in very early life, that is, in an infant aged only a few months, is difficult to treat with an ordinary truss,

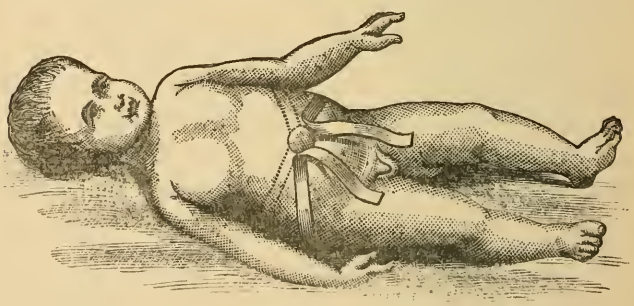


the pressure and the counter pressure to be exerted being so much more than can be tolerated by the tender skin. The wetting of the parts by the urine is another great difficulty, although here modern science has helped us immensely. When urine becomes alkaline it irritates the surfaces with which it comes in contact, but this can be so perfectly prevented by the use of boracic acid in powder, or in solution, that this one difficulty may be said to be thoroughly disposed of. The truss, or the mechanical appliance which I would specially recommend for the relief of inguinal hernia in the infant, is certainly the worsted truss, a mode of treatment little known I have reason to believe, but yet very simple and effective. It is described in Ranking's Abstract, vol. ix., p. 131. I have used it in several cases where I have been consulted on the subject of the early appearance of inguinal hernia in young infants. Worsted known as "Berlin wool" is made into a skein of twenty threads, which, stretched out straight, shall be about twenty-two inches long, the threads being tied across at intervals of two or three inches

to keep them together. One end of the skein is placed over the abdominal rings through which the hernia has escaped; or, if scrotal, it must be reduced, and, if the child should cry much, pressure made over the spot. The folded worsted is passed horizontally across the abdomen over the line of the crest of the pubes, to the opposite side, round the hip behind the pelvis, and over the hip on the side of the hernia. The folded end is then passed through the loop of the skein, and will here form a knot or bulged portion, which must then be carefully adjusted so as to lie against the hernial opening, and being carried down the upper part of the thigh, between it and the scrotum, if it is a male child, it is brought round the external side of the thigh, near to the top of the great trochanter, and there tied, or fixed with a safety pin, to the band of worsted already round the pelvis. With a little care this arrangement of the worsted may be used as an excellent defence against the distension of a weak inguinal canal, and the descent of a hernia into the scrotum. It is not powerful enough, nor could it easily be kept in position when the child is old enough to run about; but, on the principle that prevention is better than cure, it is a means of relief to which we can have recourse at a very early date, certainly before we could submit the infant to the pressure of an ordinary hernia truss, however weak the spring might be. It has this one advantage, that the infant can be washed with the truss still on. A fresh truss can then be applied, the old one cleansed, and used again.

While upon the subject of hernia in infants, I may refer to the management of umbilical hernia, a very common affection, generally treated by pressure of a pad of ivory or other hard material, over the opening, to prevent the protrusion of the bowel. It is quite evident that this is wrong in principle, as it must tend to enlarge the opening,

although it may prevent increase of the hernia. As the probable cause of this protusion is undue space between the recti muscles near to the umbilical aperture, the hernial protrusion can be controlled with perfect certainty by drawing the two recti muscles together, and thus closing the opening. To effect this, take two strips of adhesive plaister, each about three-quarters of an inch wide, and six to seven inches long, the plaister being of such a quality as shall adhere firmly, and place one on each side of the abdomen, as shown in the woodcut, one half only of each being first applied to the skin; then, if after reducing the hernia, the strips are drawn tightly across the abdomen,



and so fixed, perfect closure will result. They ought to be renewed frequently, and not placed every time exactly on the same line of skin, lest it become abraded.

The diagnosis of *calculus vesicæ* or the presence of a foreign body in the bladder introduced from without, and the fact denied or concealed from the surgeon, is occasionally a difficult and delicate subject for investigation. It is of the gravest importance that we should not be led to declare, trusting only to the subjective indications of the case, that a foreign body or calculus is present, unless the proofs be beyond the possibility of doubt. Far better to say, "A calculus or foreign body may be present, but as yet I cannot get absolute proof thereof," than to say, "This

patient has a foreign body or calculus in the bladder," then proceed to operate, and have at last to admit an error of diagnosis made too hastily. Usually, the pain produced by the presence of a foreign body or a calculus, comes on when the bladder is emptied, and the sensitive portion of its interior surface is pressed powerfully against the substance, or it is intensified by the act. But there may be sources of error. I once had under my care a man about sixty-four years of age with vesical disease, due to enlarged prostate, with all the usual signs and symptoms. The abnormal condition of the prostate could easily be verified by digital examination per rectum ; but it was one of those cases in which the prostatic symptoms masked the vesical—that is, he had frequent and urgent desire to pass urine, which was almost intolerable if not indulged in ; but as soon as an ounce or two of urine had been voided, all pain ceased, and he had immediate relief. The power also to void the urine was good, and in proof that the urethral canal, in its prostatic portion, had not been much distorted or disturbed from its natural course, there was no hitch or difficulty in passing a full-sized silver catheter, and the urine was clear and with fair acidity. There was no pain at the close of micturition, no interruption in the outflow when once established, and there was ease from trouble when the bladder was empty.

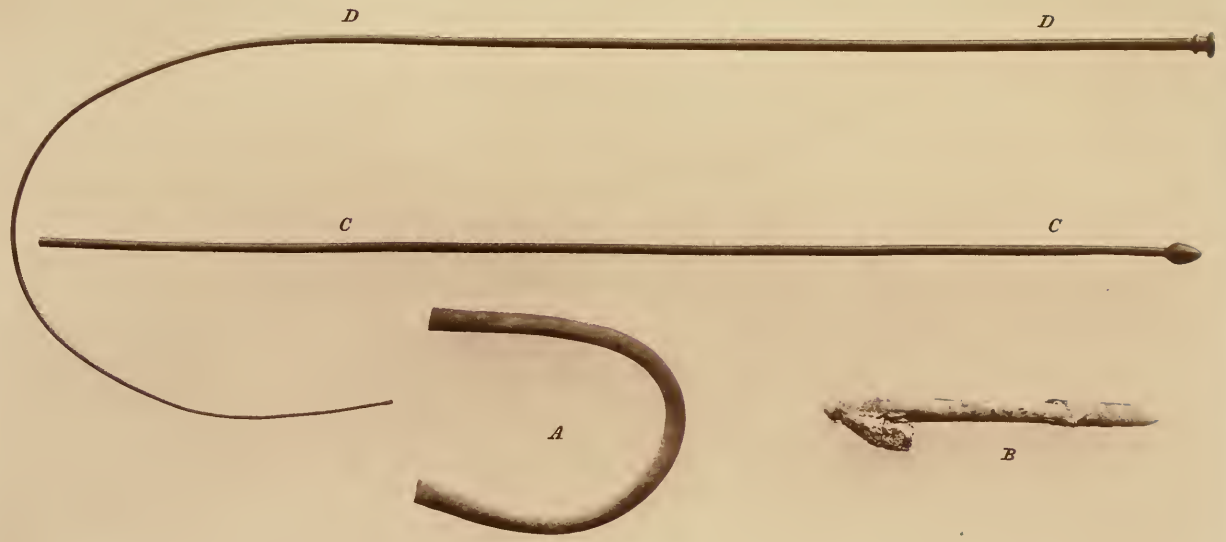
Yet with these negative signs of stone in the bladder, careful examination with a short-beaked sound, turned backwards towards the rectum, gave the usual click indicative of calculus. The calculus was removed by lateral lithotomy, and it was found to have been so moulded to the neck of the bladder above the base of the prostate, as to have been protected from pressure on the collapse of the bladder, and perhaps kept permanently in one place by its peculiar shape. It was a calculus chiefly composed

of uric acid and urates, with a thin layer of phosphates, which might soon have increased in thickness, had active cystitis been set up. This fixing of a calculus in the bladder, not due to sacculation of the bladder, while masking the symptoms, may save the patient great increase of pain in the ordinary movements of the body. I have observed in young subjects, that a mulberry calculus, with many spicula present upon the surface, may not occasion those severe shooting pains every time the patient moves, which occur so frequently where the calculus is smooth, and can roll about freely in the bladder.

But a contrary condition may exist. There may have been the symptoms of calculus without its presence. In advancing age, and even in the young, there may be a combination of circumstances which will bring about symptoms collectively very suggestive of stone in the bladder, yet due only to chronic inflammation of the mucous membrane of the prostatic portion of the urethra. This I have seen come on in the middle-aged, where a stricture existing far back in the membranous portion of the urethra had caused such stretching and dilatation of the prostatic portion, as to set up signs and symptoms of stone in the bladder, all of which subsided permanently on the division of the stricture, and the re-establishment of full calibre to the urethra.

A foreign body may have been passed into the bladder; its presence there may set up cystitis and many urgent symptoms, and the patient may deny the possibility of such an accident, and thus, the diagnosis being obscure, effective treatment may be delayed. I know of two such cases. A boy about ten years old, out of mere wantonness of purpose and sheer thoughtlessness, imagined he could pass a piece of india-rubber tubing along his penis, and propel urine through it to intensify the natural *jet d'eau*.

Plate III.



He did this, as he afterwards confessed, in a dark closet, and while he was so occupied he thought either that the piece of tubing fell out of the penis, and was lost with the outgoing stream of urine, or that it had slipped into the bladder. Twelve hours afterwards he had acute retention of urine. A surgeon was sent for; he drew off a large quantity of urine with an ordinary metal catheter, detecting nothing unusual, as the boy had not then confessed what he had done. Soon afterwards he began to suffer much pain in the region of the bladder, and he was sent into the hospital.

On the most careful sounding nothing could be felt. But fortunately, just at this time, Dr. Cruise, of Blackrock, near Dublin, had selected for me one of his endoscopes of a very complete form, and I used it in this case, while the patient was under chloroform, with great success. I could see that there was a foreign body in the bladder, but I could not then say what it was, for the boy told me he had passed a piece of india-rubber tubing such as is used for feeding-bottles for infants, and I expected to find it of a black or grey colour, whereas what I saw through the window of the endoscope-tube was decidedly red or yellow. The boy's description of what had really happened was so inconsistent in many respects that I began to doubt the whole statement, and to think the "tale of the tube" was a fabrication, and that it was a case of one or more calculi somehow so fixed in the bladder as not to be easily touched by the sound.

All doubt was removed when I had performed external urethrotomy, and with fine long forceps drawn out a piece of india-rubber tubing of a red colour, which, when laid on a flat surface, was found to have been curved so as to present part of a circle five inches in diameter, Plate III., Fig. A. When he was examined, the end of the beak of the sound,

revolving within the limits of this circle, could not touch the tube, or, if it did so, it would not encounter any resistance, or produce any audible impression.

It is worthy of remark that this tubing, which had been in the bladder nearly thirty-nine days, had not become encrusted with phosphates or any secretion from the urine to an appreciable amount, for, if such had been the case, the rough surface thus produced would have enabled us to detect its presence when it was touched by the sound.* Vulcanized india-rubber being almost imporous, will not retain any urine to undergo ammoniacal changes. This is a circumstance of some interest in connection with the toleration by the bladder of foreign bodies introduced from without, of which the following case will afford an illustration.

Many years since, a gentleman over twenty years of age, being of a nervous, excitable temperament, imagined that he had stricture, because, when wishful to pass water, if others were present, he could not do so. In a moment of weakness he wrote a full description of his symptoms to one of those rascals who, under the cloke of professional position, impose shamefully upon the unwary, to their own advantage. A long correspondence from some part of Yorkshire with a quack in London was the result, and being told that if he would come to London he could be cured by passing instruments to dilate the water-passage, he attempted the same himself by the introduction of a short piece of ivory, which was intended to be used as the handle of a crotchet-needle. By some mishap the ivory slipped along the urethra beyond his reach, and passed into the bladder. I was consulted on the case, and with the information given to me, and the fact of the hardness of the ivory securing a proper ring or click, I was

* "British Medical Journal," July 31st, 1869.

certain that the foreign body was in the bladder, where it seemed to have placed itself crosswise in the cavity. There was this difficulty in the management of the case. The patient being greatly ashamed of what he had done, I was earnestly requested not to mention the circumstance to any of his friends; but if possible, by any means, to extract the ivory from the bladder. I, therefore, as expense was no object, placed myself in correspondence with Mons. Charrière, the celebrated instrument-maker, in Paris, and obtained from him forceps of various forms, which by ingenious construction could be made to place such an object as a piece of tobacco-pipe, or this ivory rod, in the same line as the axis of the forceps, even if seized at first transversely, and so it was to be drawn out of the bladder *per urethram*. I need hardly say all our efforts failed to remove the ivory in this way, and at last it was thought best to desist from further attempts, and to await results. Now, a curious point in the case was the absence of pain, and the absence of any of the usual symptoms of cystitis. If I had not had the history of the case before me, and the physical sign of the sounding, I should have thought, for the time at least (this was from two to three weeks after the occurrence), that it was a case of malingering or imposture, had there been any possible incentive to such a course. The patient went home, into Yorkshire, and there remained for nearly five months, when, having after this long interval begun to develope distinct bladder symptoms, in the way of frequent desire to pass urine and pain after the act, he was brought to me by his friends as if it had been a fresh case, and I immediately arranged to operate for stone, which I at once diagnosed. When the time arrived, lithotomy was performed, and I found much phosphatic deposit around the piece of ivory, which I likewise removed, Plate III., Fig. B., and in due course he went home per-

fectly well. The phosphatic deposit was shown to his friends as an example of a stone as soft as mortar, and it was only the patient who, to his great delight, saw the piece of ivory, and the medical man who attended the family, and who had come a long distance, expecting to witness an ordinary operation for stone.

My object in thus minutely describing the progress of this case is to show that as the ivory was a hard, compact substance, it did not absorb into its pores the old or stale urine which remained around it every time the bladder contracted. Thus the ivory produced at first a very slight amount of irritation, at any rate not enough to excite inflammation of the mucous lining of the bladder and ammoniacal changes in the urine; and the patient went on tolerating the presence of this foreign body in the bladder for a far longer time than ever could have occurred, had it been of a soft absorbent nature, and constantly saturated with retained urine.

I mentioned this case to the late Mr. Propert, and he told me of one very similar in its progress, which he had known in his own practice. A young gentleman, as Mr. Propert said, for reasons best known to himself, passed a small stick of red sealing-wax up his urethra; a portion of it broke off, and was in some way carried onwards into the bladder. He came to Mr. Propert, the medical attendant of the family, and made a full confession of his misfortune. He was taken to Sir Benjamin Brodie, who made several attempts either to crush or remove the sealing-wax, and in some way failed to do so. Here also, the true state of things was concealed from the friends of the patient, who was engaged to go out to India, and as nothing could be done for him, and he hardly suffered any inconvenience, he went abroad. Nothing was heard from him of an unfavourable nature until he had been in India for several months, and then a report arrived that the youth was said

by some doctor whom he had consulted in India, to be the subject of stone in the bladder in its early stage, or at any rate to have many of the symptoms of it. Mr. Propert was asked what should be done; and he replied, "Let him return at once to England, and consult Sir Benjamin Brodie." This was done, and I need not say, as the anecdote was told me about the year 1849, that travelling from India was in those days a more tedious proceeding than at present. On his arrival in England, after due preparation, Sir Benjamin Brodie cut into the bladder, and removed therefrom a mass of phosphatic concretion, with the piece of sealing-wax as its nucleus. The patient made a good recovery, and so ended the romantic history of a very remarkable case.

This reminds me of what I said in my former lecture, in regard to the little boy with a pebble for so many days beneath the skin of his forehead, without visible signs of irritation. The absence of symptoms of its presence must have been due to the solid compactness of the foreign body there placed. Had it been soft or spongy, or if, in its intrusion, it had carried such matters with it, it would doubtless have set up inflammatory action, running quickly on to suppuration or ulceration.

Lastly, there are cases in which, unless certain precautions are observed, the diagnostic sign of a metallic click being taken as a positive proof of the presence of a calculus in the bladder, may give a deceptive impression, and lead to erroneous conclusions. This, in my experience, has only occurred in the female bladder, and from the nature of things, and the special conditions necesssary to its production, could hardly happen in the male subject. I refer to the fictitious production of a metallic click in the female bladder, under such circumstances, with entire absence of any calculus or foreign body within. I will relate a case.

I was requested to visit, in consultation with a physician, a lady who had suffered from bladder-symptoms such as are associated with calculus, and arranged to go to her house, and examine her, with the object, if possible, of deciding the question, stone or no stone, and the cause of her distress. I found a married lady, aged about forty years, the mother of several children, who had been confined to bed for some weeks, with many hysterical symptoms, and among others, great frequency in the desire to pass the urine, and great pain and straining afterwards. After a general examination of the case and learning its history, I passed an ordinary nearly straight female catheter, that is, one curved on a section of a circle of about ten inches in diameter, and drew off an ounce or two of urine already in the bladder, for special examination. I then injected warm water through the catheter, and I believe, that as it was a female bladder, and I myself was a little thoughtless in the matter, I injected more than was needful. I have no doubt it was nearly ten or twelve fluid ounces. This having been done, I removed the catheter, and introduced a sound, but with all my care, no click could be obtained, and no calculus felt. I withdrew the sound, saying to the doctor who was standing near the foot of the bed, how satisfactory it was, and that it simplified the case, as no special operation would be required. I then proposed that I should draw off the water I had injected, so as to save the patient the pain of passing it. Accordingly I re-introduced the same metal catheter. I placed my forefinger at the end of the catheter until a small vessel could be procured into which to receive the water I was about to withdraw. I lifted my finger; the water escaped with some force, the bladder contracting powerfully. I again put my finger on the end of the catheter to stop the stream, when just as I suppose I was

using the instrument as a sound to strike any loose material floating in the stream of water, an audible click was heard, not only by myself, but by the doctor at the foot of the bed, four or five feet distant. This I repeated two or three times, and every time with a distinct click and rebound, as if something had suddenly struck the end of the catheter. We felt therefore, now, that there was no doubt that a calculus was present, and it ought to be removed. A day was fixed—the next day, or the day after, and the patient was placed under chloroform in the lithotomy position. I passed the sound into the nearly empty bladder; no indication of the presence of stone was manifested. I then injected the bladder through the catheter, used it as a sound, and got repeated audible indications of what all thought was due to the presence of calculus. I incised the upper wall of the urethra, dilated it slowly with Weiss's dilator, introduced the forefinger into the bladder, explored it in every possible direction; but neither stone, nor concretion, nor foreign body, could be discovered. After these fruitless efforts, in a very desponding state of mind as you can well imagine, I gave up the search, made the best explanation I could to the friends, and retired. The urine passed away from the patient involuntarily for several days, then the natural power of retention returned; and, whether from the excitement of the operation, with the preparations beforehand and the treatment afterwards, I know not, but so it was; she lost all her bladder symptoms, and at last completely recovered; but certainly it was not from any calculus that I had removed; nor had she, to the best of my belief, ever had one.

You may be sure I lost no time in making experiments to see how such an error could have been made, and by what combination of circumstances so fallacious a sign could have been created.

The conditions, you note, were these: the instrument in the bladder when the click was heard, was the catheter used as a sound, and as it was hollow, and very slightly curved, the water in the bladder could pass along it with little resistance. The bladder was irritable, and possessed great expulsive power. So long as the water flowed out freely in a continuous stream, no concussion was produced; but, as I afterwards proved most indisputably, every time I suddenly stopped the outgoing stream by touching the mouth of the catheter with my finger, an audible concussion was produced to a degree no one, I am sure, who had not heard and felt it, could credit without direct demonstration. I repeated the experiment several times on various patients in the hospital, and always with the same results, provided the expulsive power was great, and the stream of fluid which escaped was flowing rapidly at the moment of arrest.

I may say that these are conditions similar in principle to the rebound and noise occasioned in an ordinary water-pipe, where a shut-off tap is suddenly closed while from high pressure in the water-main the water is escaping with great force. I have never been able to produce this condition when using a long male catheter, with the usual right-angled curve; but with a nearly straight female catheter, under the circumstances referred to, it might become to others, as it was to me, a source of fallacy, if, forgetful of what I have said, they were content to sound a female bladder with a hollow sound, and to allow any of the fluid to escape while manipulating with the instrument.

I desire now to make a few remarks on the subject of Stricture of the urethra, to which the attention of surgeons is often directed. First, as to its etiology. Where it is the result of injury, we can easily understand how the capacity

of the canal should suffer, by the slow and inevitable contraction of the cicatrix produced at the injured part. And this will remind us of the interesting fact that while wounds of the urethra, the result of accident, are constantly followed by slow contraction of the canal, wounds made in operations on the urethra, as in the removal of small calculi fixed in some part of the spongy portion, or median lithotomy, which is really external urethrotomy of the membranous portion, and the incisions made internally in internal urethrotomy, are not necessarily productive of the same permanent contraction. To account for this, it is supposed that when the urethra is ruptured, the laceration usually occurs in the membranous portion, and transversely to the direction of the canal. This causes contraction, whereas all the other forms of wounds being parallel to its axis, are not succeeded by permanent narrowing of the urethra.

It has occurred to me that some other factor or cause must be sought for to explain the contractions which follow injury, as compared with wounds made in operations. The membranous portion, the part most frequently torn in injury, is surrounded by muscular fibres, which have naturally a tendency to compress the tube, as well as to sling it and draw it up under the pubic arch. These fibres, at the moment of the injury, will be so displaced as to lift or pull a part only of the canal upwards, while the other portion may remain unchanged in its position. Here a difficulty is at once created, either for the outflow of the urine, or for the passage inwards of an instrument along the urethra, because at the injured part the two portions of the tube so broken have ceased to be opposite to each other, or in one continuous line. How far these changes may be due exclusively to muscular action, or whether or not, in some cases, effusion of blood outside the urethra, in

the deep parts of the perineum through which the urethra passes, may contribute to the displacement, are questions very difficult to answer. Most probably it is because the two portions of the tube are no longer, after injury, exactly opposite to each other, that it is so difficult to pass the instrument along a urethra so damaged.

This accident often happens to young boys, from their walking on the edge of palings or on narrow beams, and then suddenly falling astride of them. Here, after all immediate treatment has ceased, it is at all times the duty of the surgeon in attendance, to urge upon the parents of the child the grave necessity of constant attention to the condition of the canal, so as to avert, if possible, the contraction which will almost inevitably result. And this advice will be more important, and its observance is more likely to be attended by good results, if it is followed out just as the boy approaches the age of puberty.

I have watched the progress of many such cases for years after the accident—several in hospital, some few in private practice. In many of these cases, where it has been only possible at intervals of four or five months to pass a small No. 4 English catheter—and even this with difficulty,—I have noticed as soon as the boy began to grow, and there were the usual signs of puberty, then was the time specially to persevere in dilating the urethra, and so to secure a more capacious and extensible canal. It is just at this period of life that I have found the treatment by gradual dilatation to be the most successful; whereas, if then neglected, and adolescence is attained, the cicatricial contraction follows the law I have already mentioned. It grows with the growth of the subject of it, and it is apt to retain its proportionate or relative size.

Thus much for traumatic stricture, and its certain consequences if not contended with by art. It is essentially

cicatricial in its progress, and the question arises how far are all urethral contractions similar in nature, only varying in degree. No doubt the canal of the urethra becomes contracted, and loses its expansibility, at certain spots where previously there had been intense inflammatory action, and this narrowing of the lumen of the urethra may be due to deposit of lymph outside the mucous membrane in the sub-mucous tissue, as a ring or band around it; and this, in course of time, may contract so as to form a smaller ring, and so compress the urethral channel still more positively.

It has often been observed that stricture of the urethra, as one of the sequences of urethritis, much more frequently occurs in cases in which the inflammatory changes have been present for weeks or months, than in cases in which it was much the more intense, but lasted for only a fraction of the time. It is highly probable that in the tedious cases the influencing changes have advanced to the destructive stage of ulceration in one or more of the tissues involved; and that, as a result of this, when at last they have ceased, the part so injured has been left in a condition practically comparable to that of the cicatrix of a scald or burn, with all its tendency to steady contraction.

There is yet another process by which the urethra may have become strictured as the result of previous inflammation, where that process has run on to the destructive or ulcerative stage. We must not forget that all mucous canals, except those belonging to the respiratory system, have their opposing surfaces in near, if not in actual contact, except when the canal is in a condition of functional activity. The urethral canal is no exception, but rather a good illustration of this condition. In a state of rest, no urine passing along the passage, and no foreign body or exploring instrument being within it, the two surfaces of

the flattened canal are in immediate contact. It is true that the line of the folded portion is not in the entire length of the canal placed in the same direction as at the orifice and for a short distance within it. When traced backwards from the orifice, it is first placed vertically in the axial line of the body; but after this, the direction of the fold is transverse, and the urethra is compressed so as to present one surface which may be called pubic, resting in contact with another, which is perineal.

Now, imagine, as a consequence of destructive inflammatory changes, that the epithelial layer of the mucous membrane at one or more spots has been destroyed; and that, as a still further result of the inflammation, the papillary layer has also given way, and even the sub-mucous tissue has been laid bare. If these surfaces can touch each other, and remain in contact, hour after hour, in the intervals of micturition, when, by the outflow of the urine, a partial, not perhaps a very extreme separation of the surfaces will occur—we cannot wonder if they unite by adhesive action, and thus form either a bridle of new tissue extending between them, or lead to a perfect fusion of the surfaces, with diminution in the expansibility of the canal. And it is very probable, I think, that such is the case, and that from the folded form of the urethra in its quiescent condition, such adhesions are more likely to occur at the sides, where the angles of the fold exist, than in the centre. Thus would I explain the fact that in a tightly-strictured urethra, where we can barely pass a small flexible bougie, it may require to be guided alternately to one or the other side of the urethra before it can be made to reach the bladder. This, I believe, is the true etiology of stricture; it is not a simple pushing in of the mucous membrane towards the centre of the canal by the deposit of lymph on its exterior surface, the result of inflammation in the

sub-mucous layer; but it is rather destruction of tissue, followed by cicatrization and contraction. I would not say that such lymph-deposit may not exist, and that by a process of healthy absorption the lymph so effused may not subsequently be removed, and the canal restored completely to its former capacity. Yet I fear this happy result is of very rare occurrence, and the old remark, "Once strictured, always strictured," is not far from the truth.

It is not needful to enumerate all the changes which creep on insidiously in these cases, slowly advancing year by year to the inevitable result of damaged urethra, damaged bladder, and damaged kidneys. I would rather suggest a method of dealing with them by employing what I would call "the treatment by anticipation," so as to check, in the earliest stage, the commencement of such dangerous effects.

Independently of traumatic causes, stricture of the urethra may be produced organically, as it is called, as a consequence of some previous inflammation, most usually that of gonorrhœa.

The longer this inflammatory condition has lasted, the more likely is the subject of it to suffer from contracted urethra. The inflammation is said to depend on a specific cause, which is eminently infective, and in which there exists a septic condition of the mucous membrane.

The most successful agents which we employ in the treatment of specific urethritis are in their nature more or less antiseptic. To prove this point, I need only name the chloride of zinc as an injection of carefully adjusted strength in acute cases, and the bichloride of mercury in the more chronic. Even with regard to copaiba, so often given internally to control the inflammation and thus to moderate the excessive secretion of the muco-purulent discharge, it is very probable that the influence it exerts is due to the

volatile essential oil which it contains, and which, like that of the eucalyptus, has antiseptic properties. The essential oil of the copaiba, excreted by the kidneys along with the urine, acts antiseptically by washing the surface of the inflamed urethra over which it passes every time the patient micturates. For I have repeatedly observed that where copaiba has been relied upon exclusively to restrain the discharge of gonorrhœa and no injections have been used, it does not produce a curative effect until its presence can be recognized by a distinct and peculiar smell in the freshly secreted urine.

In chronic catarrh of the bladder I have seen excellent results follow the internal use of copaiba given each night in the form of capsules, the exact dose or quantity of the drug so taken, being regulated entirely by the odoriferous effect which it produces on the urine, which thus becomes a medicated fluid brought into contact with the mucous surface of the bladder.

In septic as contrasted with aseptic inflammations, the changes which result from the intensity of the inflammation, run on to the destructive stage, and advance very rapidly; therefore, if these conditions be prolonged, ulceration and subsequent contractile cicatrization must follow. The entire cessation of discharge from the mucous surface marks the close of the period of ulceration. The discharge may continue after superficial ulceration is at an end; but if all discharge has ceased, it is very probable that cicatrization is in progress, if not already completed. The contraction of the cicatrices, for there will generally be more than one spot or portion of the urethra so attacked, is very gradual—so gradual as to be overlooked by the patient himself until certain signs, in the way of delay in the act of micturition or the diminished stream of urine, attract his attention. The symptom which is often the

earliest seen and complained of by the patient, is the drop of urine which collects near the orifice of the urethra, and escapes after what has been thought to be the entire completion of the act. This, viewed as a physical sign of stricture, has always seemed to me to show this one thing—that in such a case, from diseased action, the extreme orifice of the urethra is no longer, as it is naturally, the narrowest portion of the canal. But under the conditions of stricture, some other portion, say the posterior spongy or the membranous part, being reduced in capacity, the accelerator urinæ muscle, weakened possibly by continued and unavailing action, no longer expels efficiently the few drops of urine which remain in the urethral tube when the bladder has emptied itself, and which it is the function of the accelerator muscle to eject suddenly, by compressing the bulbous portion of the canal. A very little urine is thus held for a moment in the urethral tube, and dribbles out afterwards, when the urethra ought to have become perfectly dry.

If there is one mode of dieting more than another which, theoretically, would be liable to prolong an inflammatory action in the mucous membrane of the urethra, and to cause the lymph in the cicatrized surfaces to contract more energetically, and so hasten the production of stricture, it is the use of alcohol in any of its forms. The reason is obvious. At all times where alcohol is taken, as in ardent spirits, wines, or even malt-liquors, only a portion of it is really metamorphosed by the digestive processes. That which escapes the action of digestion may pass away by the skin or by the mucous membrane of the respiratory organs; and a certain part may still be excreted through the kidneys, almost unchanged in its nature, and separable from the urine by chemical process. Now, this uncombined—it might almost be called *free*—alcohol must

irritate the whole of the urinary tract, and where its use is constant the effects cannot be slight or unimportant. Ask any patient who has recently had acute urethritis, but in whom, for a time, the inflammation of the urethra has so far subsided that the discharge has nearly ceased, and with it all pain in the act of micturition. Tell him to take, by way of experiment, a single glass of some highly alcoholic wine, as sherry, or some spirit and water, and learn from him how he will certainly experience an immediate, though only a temporary, return of all his previous symptoms, viz., pain and difficulty in micturition for hours afterwards, until his urine no longer contains the useless excess of alcohol which his kidneys are laboriously striving to expel from his system.

Now, imagine this state of things going on from day to day in an habitual drunkard, or even in a man who only indulges moderately in alcoholic drinks, and we can see how largely such habits must contribute, if not to the actual production of stricture, certainly to the promotion of just that state of the mucous membrane which must accelerate its formation.

Thus, to warn a patient predisposed to stricture from a directly inflammatory cause, to desist from spirit-drinking, even in its mildest forms, is an imperative necessity.

But there is another mode of treatment equally preventive and prophylactic in its action, and that is the early and regular dilatation of the passage, so as to prevent the cicatricial contraction, which is the very essence of the cause of the production of stricture.

Where a surgeon has treated a patient, the subject of gonorrhœa, and, by judicious measures carefully followed out, all inflammatory changes have subsided and all discharge has ceased, it ought to be the rule of practice that he should still regard it as his duty before the treat-

ment is concluded, to introduce a gum-elastic catheter, or still better, a flexible ball-bougie, Plate III., Figs. C C, so as to gauge the urethra, and ascertain if there be any contracted or specially tender spots, where probably a hyperæmic state may still exist. If either of these conditions be present, he ought to carefully watch the case, and by dilatation at regular intervals, to keep in view the probability of further contraction, and so prevent it. The proper instrument for this purpose is the ball-bougie, the *bougie à boule*, for, as it travels along the urethra, it only stretches, for the moment, the part which is too small for it, the rest of the canal undergoing no distension by reason of the narrowness of the stem of the bougie. This, in fact, is the true preventive treatment of stricture of the urethra, and "*treatment by anticipation*," for it may extend—it must extend—over months, or even years, but the good results which follow upon it, as compared with those engendered by neglect and inattention, ought to be regarded as more than counterbalancing any trouble connected with it.

How rarely are we able so to watch a patient for whose ultimate recovery we feel responsible, yet how necessary it is that such treatment should be practised!

How much more frequent is it, the first time we see a patient who has stricture, that we find it not only advanced but very advanced, and very confirmed in its condition. The amount or the degree of change, we will assume, in some typical case is very excessive, so that complete retention is imminent but not yet present, and the stricture, on examination, is pronounced to be very nearly what is called an impassable stricture. What is to be done? What is the best treatment in such a case?

One word would suggest it: the first indication is that of Rest. Without Rest, in the most comprehensive mean-

ing of the word, it is difficult, if not impossible, to overcome the most prominent symptoms incident to the presence of a confirmed and tightly contracted stricture. The horizontal position alone, when preserved for some hours, as compared with the erect posture, will do much to diminish that congestion of the venous plexuses in and around the urethra which adds to the swollen state of its mucous membrane, and so further encroaches upon the capacity of the canal.

To these two means of relief for the acute congestion of which the urethra is then the subject, may be added the administration internally of mild saline aperients, such as sulphate of magnesia, in small doses, repeated regularly, and combined with sweet spirits of nitre and nitrate of potash, so as to solicit such action in the kidneys as will augment the volume of urine, and help to carry off, in a soluble form, the various compounds of urea.

Again, the increased action of the skin which takes place in bed, as contrasted with the chance of cold and chills when the patient is moving about, especially if aided by an occasional warm bath, will spare the kidneys some excess of action, which, in confirmed cases of stricture, they are generally very ill able to bear.

All these means should be tried, and persevered with for two or three days, if the bladder is not painfully or extremely distended, before any attempt is made to pass an instrument into the bladder, however fine and delicate such instrument may be.

I need not specify any particular form of instrument to be used, whether solid or hollow; and certainly, if we have reason to believe, from the history of the case, both past and present, that the contraction is excessive, the instrument should be proportionately small, and perfectly pliable.

The channel through which we have to guide it, is certain to be tortuous and not straight, and the sides of it inflamed, tender, and lacerable on the application of any force.

The old method of forcible catheterism in an inflamed stricture of the urethra is, I trust, for ever discarded. Our object is, in every case, to find an instrument small enough to pass through the strictured canal, not to press or strike against the contraction. If we do the latter, as doubtless often has been done, we are apt, not to pass it through the narrow passage, but rather to push forward the hardened tissue which causes the contraction, stripping a portion of it from the sides of the canal, and perhaps piercing the side with the point of the instrument, and so making a false passage, which will permanently complicate the case.

Arte non vi must be the watchword, and success will eventually reward our patience and our care. A very little practice and light manipulation with a fine pliable bougie will soon tell us, by the gradual cessation of resistance, when we have really traversed the narrow passage, and reached the wider space beyond. It is here, in this expanded and thinner portion of the urethra, that we have the internal orifices of fistulæ which have resulted from the giving way of the urethral wall at one or more spots, partly from the undue pressure to which it was exposed, and partly from the fact that an ulcerated opening has been formed, as a consequence of destructive inflammatory changes. If the escape of urine has been gradual, lymph may have been deposited around and beyond it and, by the continuance of this process, a fistulous track is formed, opening externally through an ulcerated spot of skin. But the same changes occurring suddenly, with little if any effusion of limiting lymph, set up the acute and dangerous symptoms due to extravasation of urine, which require prompt and energetic treatment.

Now, where we have to deal with a case of stricture, with chronic perineal fistulæ, as a rule, if by any means we can restore the urethra to its natural capacity, or, in other words, relieve the stricture—I will not say cure it permanently—resistance to the natural outflow of the urine in micturition being overcome, the urine will cease to enter the internal orifices of these fistulæ; they will gradually close up if the urine can pass freely, and without the exercise of undue pressure by the patient.

But we may have to deal with a case of multiple perineal fistulæ, with a fully capacious urethral canal, which will admit, with ease, a bougie catheter or equal to No. 12, English scale; and the fistulæ are apt to remain unhealed in spite of this condition of the canal. I suppose such a case will remain unrelieved, from the circumstance that in it the urethral orifice of the chief fistula, of which the others may be branches, is unusually large—too large to be closed by adhesive inflammation.

In a case which I had the opportunity of watching, the man had rested in bed, and worn a very large catheter constantly for many weeks, almost months in the aggregate, the fistulæ being still unclosed, I adopted as a last resource an opposite line of treatment, and, happily, with success. I gradually diminished the size of the retained catheter from 12, to 11, 10, 9, and so on, the urethra contracting until it had arrived at the size of No. 4, English scale; and then I found that no urine entered the fistula, and it healed completely. After this, I let him alone for some months, only passing, occasionally, a catheter of this diminished size. And then, when I thought perfect cicatrization of the internal orifice of the fistula had been accomplished, I very slowly re-dilated the urethra to the moderate size of a No. 6 or 8 catheter, and all went well.

No doubt, in the early stage of treatment in this case, by over-eagerness to dilate the urethra, I had really prevented the closure of the internal opening of the fistula, which would have shut off the entrance of urine and thus secured its obliteration.

This plan of treatment I have adopted in other cases where urinary fistulæ have remained patulous, after full dilatation of the urethra has been obtained.

As soon as we can pass an instrument easily through the contracted portion of the urethra, we have to decide upon one of two courses—either continuous or intermittent dilatation—as may be the more applicable to the particular circumstances of the case. Where the pain is not great, and the patient is neither restless nor irritable, continuous dilatation is the quicker and the more successful of the two plans. This may be effected by a succession of small filiform or gradually tapering bougies, one being retained for a few hours, or until by its presence or by the subsidence of swelling in the lining of the urethra, it is found to be no longer tightly gripped, and that it can be freely moved to and fro in the passage; then it is to be removed, and a larger size substituted for it, always following the French gauge, so as to make the transition from size to size as gradual as possible, until it be equal to No. 5, or even No. 6, French scale.

It is often difficult to pass a larger filiform bougie just as we have removed a smaller, for there may still be much tortuosity in the canal, and its introduction not easily insured. I have used with great advantage the very long tapering bougie which Mr. Reginald Harrison has contrived for this special purpose, and which he calls the "whip bougie," Plate III., Figs. D D. This instrument, once through the narrow canal, may hour by hour be gently pressed onwards, and without removal and re-introduction

it acts as a long conical wedge with which to dilate the passage. It is a very ingenious and useful instrument.

It is at this stage of expansion of the canal that we may discuss the propriety of performing internal urethrotomy, and the cases to which it is applicable. With so small a guide as is furnished by a bougie of No. 6, French scale, if it can be passed along the whole length of the urethra, and if we are sure it has not entered a false passage instead of the bladder, or gone out of the urethra through one sinus, and come into it again through another nearer the bladder—these possible errors in direction being carefully avoided—we may proceed to the operation of internal urethrotomy. This consists in a series of operations beginning with the passage of a No. 6 bougie, and culminating in the introduction into the bladder of a catheter equal to No. 34, French scale, through which the urine can be withdrawn.

At every successive stage we have ample proof whether or not we are proceeding rightly; and if there is a suspicion that some departure has been made from the true line of the passage, it is easy as well as prudent to desist for the time, and on some future occasion to complete the urethrotomy. To prove that we have the power of so verifying the correctness of our advance, lest any such error should have been made, I may enumerate the various steps to be taken. To begin with, we introduce, and we assume we are able to pass effectively *une bougie conductrice*, and to this we screw on an exceedingly small silver tube, fashioned as a catheter, and this is led onwards into the bladder.* If this stage is reached, urine will flow through this little catheter, confirming our impression that the instrument is really within the bladder. But if this should

* *Vide* my pamphlet on Internal Urethrotomy, with its modern improvements, Plate II., Figs. B. and A. (1879.)

not occur, by reason of the tube being stopped up by blood or mucus, or because there is not sufficient urine in the bladder, we can inject warm water with a fine syringe, and wait for its discharge.

Then, this fine silver tube, stiffened by a steel rod screwed into it, becomes at once a safe guide for a set of tubes with conical ends, of increasing size, to be passed over it, by which the canal can be dilated up to the equivalent of No. 12, French scale. The catheter, steel rod, and the largest tube are then withdrawn from the passage, as far as the metal mount of the bougie, from which they are unscrewed, but the guide-bougie itself is left in the urethra.

Lastly, the urethrotome is screwed on to the bougie, which, in its turn, serves as a guide for the introduction completely into the bladder, of the central portion of the urethrotome, along which the cutting part slides. I have the blade made self-sheathing, so that there is no danger of the urethra being cut on the removal of the instrument or at any other moment, except when by pressure on the handle, the edge of the knife is exposed.

Internal urethrotomy, as I would advocate it, is an operation for which we must select our cases. It is not applicable to every case of stricture. The four cardinal points to be remembered in an attempt to carry cases of internal urethrotomy to a successful issue are these :— (1) There must be no probability of renal insufficiency following the operation. The urine must be carefully examined in this respect. It must show an average specific gravity in proof of the urea compounds which it contains being duly excreted in normal proportion. (2) There must be no purulent discharge from the urethra ; or, if such a discharge has existed recently, it must have been rendered perfectly aseptic and innocuous by the use

of antiseptic injections, such as a weak solution of chloride of zinc, before we touch the urethra or wound its delicate absorbent surface, with any cutting instrument. (3) At the time of the operation and afterwards, care must be taken that we do not expose the patient to the risk of chill, by undue exposure to cold, not only of the region of the bladder and the abdomen generally, but also of the lower limbs, this being a very fruitful source of urethral fever after such operations, although not the only one. (4) Lastly, we must strive to avert the occurrence of febrile excitement by promptly administering quinine after the operation, as soon as the effects of the anæsthetic have subsided. The quinine should be given in large doses, in the form of pill, so mixed as to quickly dissolve in the stomach,* and with it, opium, always in solution,† not in a solid form, in order that it may be easily absorbed, and not delayed in its action : otherwise it might suddenly produce severe soporific effects.

With these precautions, cases of internal urethrotomy will show, I believe, a good percentage of favourable results. Yet with regard to the mechanism of this operation, I know it may be objected to it that our incisions being made only along the upper or pubic wall of the urethra, they can not thereby divide all the bands or adhesions which have diminished the capacity of the canal.

This, I fear, is an insuperable objection. But I know not of any other operation for stricture in which we can be sure that this great difficulty has been overcome. We can

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* ℞. Quinæ Sulph. pulv., gr. xx; mellis, gr. x. vel. *q.s.* ut fiat massa, in pil. xij æquales dividend. One pill every hour or second hour.

† ℞. Tinct. Opii, f℥j ; Acid. Sulphuric. dil., f℥j ; Syr. Aurant., f℥ij ; Aquæ *q.s.* ad f℥vj. M., fiat mist. One tablespoonful with each quinine pill.

only rely, therefore, upon the effect of forcible dilatation of the canal by the large conical metallic bougie which we pass at the end of the operation. After this, the permanency and success of the case will depend entirely upon our power to preserve the enlarged calibre of the canal, until a cicatricial splice of new tissue shall have increased the general circumference of the urethra.

And here I am reminded of a very pertinent and thoroughly practical remark which you made yourself, Sir, in a discussion on the subject of the treatment of stricture at one of our medical societies some years since—namely, that in dealing with a case of stricture of the urethra, said to have been cured by any particular surgical proceeding,—knowing how prone such cases are to undergo secondary contraction, the important question must be asked ere the verdict of success is recorded, "How long is it since the operation was performed?"

LECTURE III.

ON SOME OF THE INJURIES AND DISEASES OF THE RECTUM, PERINEUM, ETC.

OF the many surgical ailments in this region of the body, which the surgeon in general practice has to treat, if we except the hæmorrhoidal condition of the rectum, *fistula in ano* is the most commonly met with. It is often difficult to make out why a patient should be the subject of this malady, or to explain its progress, how far it portends greater evil in the chest with proclivity to phthisis, or the actual presence of constitutional cachexia associated with tubercular changes in distant organs. Besides the cause, and the diagnosis, there is yet the question of treatment, whether in every case we are bound to operate, and, if so, in what manner, and with what prospect of success.

First, as to the cause of *fistula in ano*. The most common will be abscess produced by inflammation in the ischio-rectal space, which, unrelieved, travels towards the cylinder of the rectum, as a point of less resistance than the skin and its subjacent tissues. A frequent origin of such an abscess in those who are robust and otherwise healthy, is,

in my opinion, habitual constipation, whereby, in the powerful straining action resorted to for the emptying of the bowel, the cellular tissue around is unduly compressed, bruised and injured, and cellulitis is set up. Or, as I have sometimes known, where from circumstances the patient with a loaded rectum, and every desire to empty it in obedience to the call of nature, thoughtlessly postpones the act, the swollen bowel slowly produces, by prolonged distention and pressure, the same injury to tissues and the same result, as if it had taken place more rapidly.

We know, in patients disposed to phthisical disease, how irritable the mucous membrane of the intestines often is, so that just an opposite condition, a tendency to diarrhœa, can quickly be established. For, as in the advanced stage of phthisis, we frequently have diarrhœa connected with ulceration of the colon, so in the earlier stages there may be a similar yet milder state, an aphthous condition possibly of the rectum, with here and there more positive congestion and inflammatory change, which may extend from the interior to the exterior of the bowel, in a direction contrary to what happens in cases preceded by constipation.

At last, this excessive action in the mucous membrane of the rectum and the tissue beneath it, terminates in abscess, which either bursts spontaneously, generally into the bowel, or is opened artificially by the surgeon to relieve the pain; and thus a second opening is produced and a fistula established.

So that it is possible that while in the one class of cases, constipation has preceded the formation of the abscess antecedent to the fistula; in the other class, a relaxed condition of the bowel may have existed, and yet a result nearly similar in each has been brought about.

It is notorious that in some cases of ischio-rectal abscess, where we open the abscess, it heals, and no fistula follows;

while in other cases, however early we make our external incision, freely, and with good effect as far as escape of pus is proof, yet a fistula forms, and will remain unhealed in spite of every treatment short of its complete division.

Now, in my experience it is the patient with the previously irritable bowel in place of constipation, who is the more liable when an abscess has formed near the rectum, and it has been opened, to have a fistula follow as an inevitable consequence. And I have in a few instances noticed this particular condition of things. A person in delicate health, perhaps liable to diarrhœa, but certainly not the subject of habitual constipation, is suddenly attacked with pain in or near the rectum, increased by pressure, and with constitutional symptoms indicative of purulent formation near the bowel. An incision is made with proper care, and pus evacuated. Up to this time no trace of blood or muco-pus has passed *per anum*. We refrain from passing any probe or director into the wound, lest we may pierce the bowel; yet, the next day, or two days afterwards, blood-stained mucus, or pus, is seen escaping through the anus; and it is then too evident that what most probably was at the time of the incision through the skin, a small slough on the mucous surface of the rectum over the projection of the abscess, has now separated, an ulcerated aperture has been formed, and a fistula established from the skin to the interior of the bowel, as the director or the probe will then prove.

With regard to diarrhœa, and irritability of the lower bowel, considered in regard to their surgical relations, with the ultimate object of surgical treatment, I cannot urge too strenuously on the surgeon, the duty of always making, in such cases, a careful rectal digital examination, when the cause of the irritability is obscure, or when it resists the more ordinary modes of treatment.

We are all ready enough, I take it, to examine a patient by the rectum, if constipation, difficulty or pain in defecation, is the subject of complaint. But I doubt not, there are many surgeons who would think themselves excused from doing so, if what the patient complained of was chiefly a too frequent action of the bowels—in fact a form of chronic intractable diarrhœa.

Yet, without adopting those heroic methods of treatment or of physical investigation which some have advocated, in which, under the influence of an anæsthetic, we endeavour to pass the hand and wrist, and even part of the fore-arm into the rectum for the purpose of exploration, I am sure we may often derive much valuable and positive information by rectal examination in doubtful cases; and even in those of ordinary occurrence, it is a very proper thing to do.

One case occurred to me which was as instructive as it was annoying, for I had misunderstood the case until a rectal examination revealed its nature.

A maiden lady, nearly fifty years of age, consulted me for this simple ailment, to all appearance irritability of the lower bowel, occurring only at night, and greatly disturbing her sleep. She told me she generally had the usual morning evacuation after her first meal, and throughout the rest of the day, no further action. As soon, however, as she got into bed, and laid down, and was just passing into sleep, up she must get, with an urgent desire to relieve the bowels, which for the time gave her ease. This would recur two or three times in the night, and it was for this I was consulted.

Of course I looked fully into the question of diet, the time of her meals, the food taken on going to bed, and other such generalities; but with all my suggestions the trouble went on. In the day-time, quiet and rest; at night, ceaseless, or at least frequent, disturbance.

This went on for many months, and she was content to bear the annoyance, although very little if at all relieved by the careful use of opium, and some astringents taken at bed-time.

She then consulted a London physician of great eminence, and, as he said to me afterwards, he was himself not a little puzzled, at his earlier visits, by what the patient described as her symptoms. But he soon followed his invariable rule in cases of irritable bowel or chronic diarrhœa, namely, to make a rectal digital examination ; and then he found, in this lady, a fibroid tumour loosely placed in the pelvis, attached possibly to the back of the uterus, or to some part of its appendages, which in the upright, or in the sitting posture, fell away from the bowel to one side of the pelvis, and there, for the time gave no special sign. But as soon as the horizontal position was assumed, the mass fell backwards on the rectum and so pressed upon it as to congest the mucous lining, and excite a desire to evacuate ; and thus my patient was suffering from a mechanical cause, which, although evident in its effects, it was impossible to remove.

There is another condition, usually in children, where a rectal examination will often explain the cause of a persistently irritable bowel, which nothing else might show in its early stage, and that is, in mucous polypus of the rectum.

It is quite true that before this has long existed, prolapsus of the bowel may come on, and reveal its presence : still, the finger can discover it at a much earlier period.

Where *fistula in ano*, or rather *fistula in recto* exists, when it is chronic and confirmed, much may be done in deciding as to its cause and its progress, by a digital examination of the rectum before the probe or the director is used.

The practice formerly in examination of a case of *fistula*

in ano was first to pass the probe, note if it travels towards the rectum, then introduce the index finger into the bowel, and try to feel the end of the probe, that you may know if the fistula is complete.

But, I would say in every case, settle the question as to the condition of healthiness or otherwise of the bowel before you do anything towards the exploration of the fistula.

I have known a surgeon of good experience, asked to go and operate on a case of *fistula in ano*—an operation, it may be said, of no great severity—taking for granted that it would be a case suitable for operation, have everything ready, pass a director along the fistula, follow it by the finger in the rectum, and then discover, for the first time, an unexpected state of things, viz., the presence of an epitheliomatous deposit with contraction of the bowel and corresponding dilatation above, with ulceration and abscess as a starting point for the fistula, by which complications the intended operation was rendered altogether useless.

I once met with a case in a young woman in whom cicatricial contraction of the rectum had followed upon chronic dysentery, and no fewer than eleven fistulous openings had formed in the perineum and around the anus. In this case it was thought when the first abscess formed, and a fistula followed, that it was from constitutional and not from local causes. This should remind us that in every case of chronic fistula near the rectum, the fistula, which at first was simple, may have branched out in various directions, and so multiplied itself by repeated attacks of intercurrent inflammation. Each line or branch of the fistula must be separately divided at the time of the operation, or trouble will subsequently arise.

Then, as to the duration of a fistula communicating with the bowel, and the risk of allowing a suppurating surface,

such as the lining of a fistula must always represent, to exist in any person for an indefinite period. I knew a lady who had a *fistula in ano*, with an opening upon the skin about an inch and a half from the anus. She was to all appearance healthy, and free from any signs of lung complication. She would not consent to be operated on, but was content to let this condition of things remain unrelieved for nearly three years, when, catching cold, I believe through fatigue and exposure to rain while upon a journey, acute pyæmic symptoms set in; viz., high pyrexia with delirium, pain over liver, frequent vomiting, and distended abdomen, and she died within a week from the commencement of her illness.

I was present at the *post-mortem* inspection, when we found in the liver an immense abscess, containing much more than a pint of pus, which, had we known to exist during life, or if the history of the case had suggested it, we might possibly have opened. Yet with the presence of general septicæmia, I fear no good result would have followed.

In a complete fistula the internal opening may not be in the same plane, or in a direct line with the external. It may pass partly round the bowel, in the sub-mucous tissue, and pierce the mucous membrane at a distant spot. Or it may dissect up the mucous membrane, and travel high up by the side of the rectum, still outside its cavity, and at length enter it at a spot far beyond ordinary reach. This is apt to occur with abscesses and fistulæ attendant upon strictured bowel from dysenteric ulceration and cicatrization, or from malignant disease. But where it occurs in an ordinary case of large abscess followed by fistula, for which an operation has to be performed, the question may arise, if the internal end of the fistulous track be high up, are we to trace it upwards, and there divide it? Or, supposing it

is really so situated, may we content ourselves by piercing the wall of the sac of the old abscess at a convenient distance within the bowel above the deeper fibres of the sphincter? A complete outlet being thus obtained for the secretions of the sac, and rest for the edges of the divided fistula, will the progress of the case be satisfactory?

As a general rule, the remark of the late Professor Syme is strictly correct, that in spite of this extension upwards of the sac of the abscess, the point at which the bowel has been perforated by the ulcerative changes is much lower down, and must be sought for nearer the anal opening than might be expected.

If such an internal opening can be discovered, the director should be passed through it, and the structures divided, regardless, for the time, of the height of the abscess; for by the freedom thus afforded for the escape of the secretions, and by careful dressing, perfect healing may result, and possibly no further incision be required.

Yet I have known a case in which a man was operated upon for *fistula in ano* in the usual way. Care was bestowed on the after-treatment of the case, but yet a troublesome muco-purulent discharge remained, to the great annoyance of the patient. He was about thirty years of age, very stout, in excellent health, and free from indication of visceral disease. I was assured that at the time of the operation the internal opening of the fistula was easily reached, but the abscess had dissected up the bowel for a great distance, and left, after the operation, what used to be called a "night cap," a pouched cavity opening downwards towards the anus. Yet there was nothing at the time of the operation to suggest the presence of this pouch.

When the bowel was dilated with a trivalve speculum, a probe could be passed upwards for an inch-and-a-half, beneath the mucous membrane. With a long pair of narrow-

bladed scissors this was divided,—the edges gaped widely, being stretched by the action of the speculum,—a little of each lip of the wound thus made was cut away, to retard re-union, and the result was most satisfactory, considering for how long a period after what was accounted the end of the first operation, he had suffered from continuance of the trouble in the rectum.

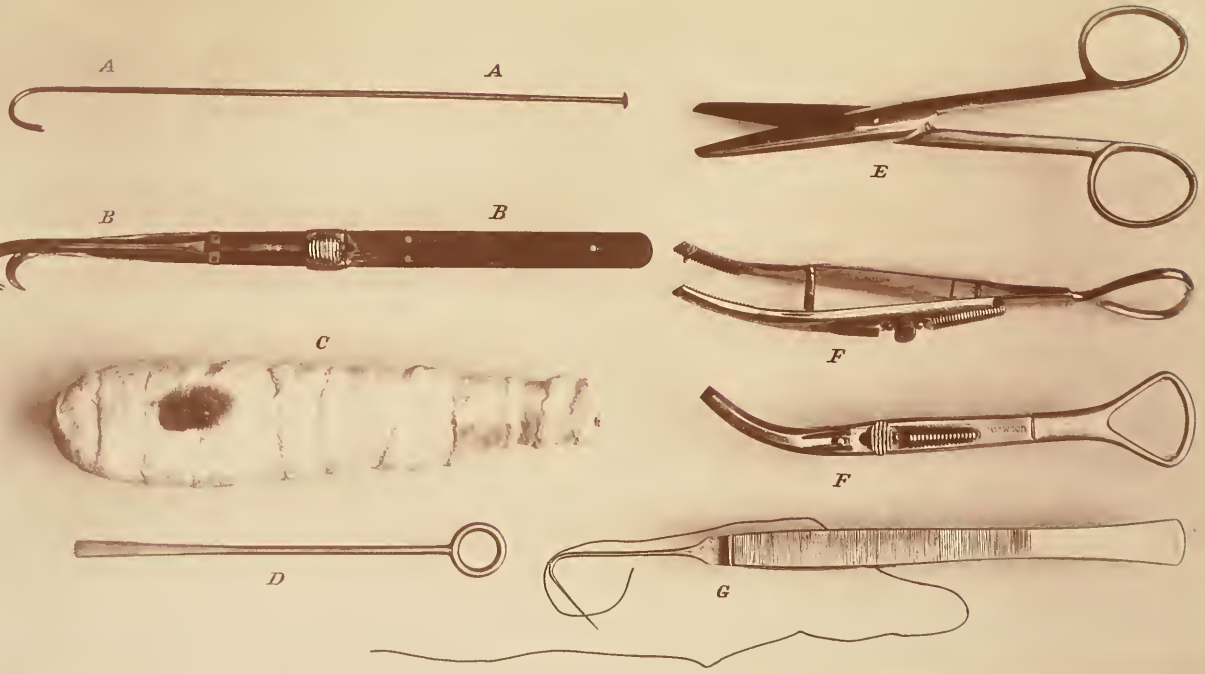
The case led me to adopt this as a rule of practice, very rarely to be departed from; after the operation for *fistula in ano*, no matter what care had been exercised in dressing the case up to what is presumed to be complete healing,—not to give an opinion as to the probable success of the treatment until the patient has been examined with the speculum. The lateral fenestra of the instrument should be placed over the line of the incision, and a long and straight probe being directed towards the upper angle of the cut, we must satisfy ourselves that the incision is completely closed, and that no cavity exists in that direction.

This being done, another probe is used, bent at an angle as shown in Plate IV., Fig. A A, and laid on the line of the cicatrix. It is lightly drawn along it towards its lower end, to ascertain whether at that spot any portion remains unhealed, whereby a small pouch might be formed, opening upwards towards the bowel, yet closed below, in which rectal mucus or thin fæcal matter might collect, and cause recurrent attacks of inflammation.

It is not until this has been done that I feel confident of the condition of my patient; so often have I known of relapses after the operation for the division of *fistula in ano*, or of cases which are said not to have been successful only because every portion of the divided surface had not been thoroughly and firmly cicatrized.

If I find such a pouch at the lower angle of the operation-wound, I can with the instrument shown in Plate IV., Fig.

Plate IV.



B B, which I have called a guarded hooked knife—this, when closed, being of the same size and curve as that of the probe—divide the pouch from within outwards, and by a single movement in the handle, change the blunt hook into a cutting instrument. It is quite easy to use the closed knife as a probe in the first instance, and the existence of such a small pouch or fold being demonstrated, the blade of the knife is unsheathed, the cutting surface brought into action, and as the instrument is withdrawn, the pouch will be opened by the incision, and the wound dressed as the fistula had been previously.

There is this advantage in the instrument I here show. It can be used with the speculum, and the sinus can be explored while the patient is on his left side, without the use of any anæsthetic. Nothing can then be more favourable for the division of the fistula, for you have only to draw back the knife, as soon as the cutting edge is free, and if the patient makes a plunge, or tries to start away from you, instead of frustrating your efforts, he will just do what will assist you in the complete division of the pouch.

This hooked knife is very useful for the division of small internal blind fistulæ, more properly called sinuses, which are found occasionally just within the areola of the anus. The presence of such internal blind fistulæ can first be proved by the use of this instrument, and then they can be divided. Internal blind fistulæ begin as small abscesses in the pouches which exist naturally in the rectum, where the mucous membrane is loosely folded, just within the sphincter.

An internal blind *fistula in ano*, or, to speak more exactly, a sinus leading out from the rectum, with only one discoverable opening, and that within the bowel, occasionally takes very strange and curious courses, which may obscure the diagnosis very considerably. Such a case

once occurred to me in this way. I was requested to give an opinion as to the nature of a small tumour which a gentleman had on one buttock. It was on the right side, at the back part, too high up to be touched in the sitting posture, but yet giving much inconvenience by the friction of his dress. He had travelled much in hot climates, had ridden on camels and the like, and also had experience of the bites of poisonous animals, and of scratches and wounds of all sorts.

The tumour, of a somewhat circular form, an inch and a half in diameter, raised above the skin, which was thickened and polished over it, was quite hard to the touch, painless on deep pressure, but very sensitive to light pressure across its surface. As far as he could tell, it had existed for two years, and had commenced as a small nodule in the skin. During the last few months it had enlarged considerably.

The patient was out of health from worry and hard work in business, and the medical man in attendance asked me to remove the growth, for the patient was constantly referring to its presence, fearing it might take on malignant action.

I hesitated to give an opinion as to the true nature of the tumour, for I observed that the inguinal glands on the same side were enlarged and indurated; yet there was no pain in them, or in the swelling itself, except as I have stated.

In my note-book I entered it as "Keloid growth on buttock? Query, malignant degeneracy?" The day came for the operation. The patient was placed under the influence of an anæsthetic, and I made a large elliptical incision, so as to remove healthy skin around the mass. The tumour seemed to dip some distance into the fat of the buttock, and this also I removed. I then found that

the under-surface of the mass was very soft, as if composed of the remains of an old abscess, with flaky masses closely packed together, and some serum or serosity between them, but no recent pus could be recognized. At the lower part of the wound there was a depression, and into this I passed a long thick probe which readily glided on towards the bowel.

I put my finger into the rectum, and there I felt the point of the probe beneath the mucous membrane, not with any opening—at least I could not find any—but with the membrane so thin as to be readily transfixed. A cut was then made into the bowel by the side of the probe, as in an ordinary fistula operation, laying open a sinus nearly five inches in length, and dividing the sphincter of the bowel rather more than an inch within the rectum. It was evident, therefore, that this patient had been the subject of a very chronic and slowly advancing internal blind fistula; that the progress having been gradual, the fistula had not branched laterally, but its extreme end had excited just enough inflammation and thickening of the skin and subcutaneous tissue, as to imitate a keloid growth, for which I had at first mistaken it. The patient made a good recovery, and the theory of malignancy was happily dispelled.

There may be a difficulty in making a positive diagnosis in a case where a suspected *fistula in recto* appears as an external blind fistula, and the question to be decided is whether or no it is a sinus succeeding a surface-abscess of the part, running parallel to the wall of the rectum; or whether it has perforated the bowel.

This once occurred to me under peculiar circumstances, and I will relate the case. A lady, the widow of a solicitor, was compelled under the terms of his will, to assure her life for a very large sum, I believe it was either ten or twelve

thousand pounds, so that in the event of her death, the money thus secured might go to their children, she having only a life interest in some property.

She applied, in the ordinary way, to an assurance office. The medical officer discovered, on putting certain questions to the applicant, that she had suffered from abscess near the rectum, and that possibly she had *fistula in recto*. There was an external opening two inches from the anus, and a probe, passed carefully along it, took a direction nearly parallel to the bowel; yet by no process of manipulation could the probe be felt through the wall of the rectum, or anywhere beneath its mucous membrane.

It was doubtful, therefore, if it was a sinus only, or a fistula of which the patient was the subject. She experienced no inconvenience from its presence, except that at times the sinus became distended, and then subsided spontaneously. The decision of the assurance company was this:—that so long as this sinus existed there would be increased risk as to the expectancy on the duration of her life, and she must pay a higher yearly premium, which, however, would be reduced to the ordinary rate, if she would consent to be operated on, and produce a report that a satisfactory cure had been effected. This was the state of things when the case came under my observation; and I was told she had been seen by several eminent surgeons, some of whom thought that the sinus was due to bone irritation, either in the coccyx, or in the tuber ischii, but no one could say positively that it communicated with the rectum, and that the ordinary operation for *fistula in recto* was needful or justifiable.

The friends informed me that in a pecuniary sense, it was a matter of great importance for this lady to be relieved of the high rate of premium she had to pay, which was about £150 per year in excess of the usual rate.

From my experience of the case of the lady with pyæmia and acute abscess of the liver, to which I have already referred, I could not but feel that the assurance company was acting prudently.

Therefore, being as unsuccessful as my predecessors in tracing the path of the fistula with the probe, and being unable by this means to say that it communicated with the bowel, I had recourse to a simple expedient, which answered perfectly. I made a small *tampon*, or plug of slips of lint well soaked in white starch and water, tied them together, and let them dry into the form shown in Plate IV., Fig. C, taking care that the plug was not so bulky as to distend the rectum, and compress and close the fistula. The plug thus made, when quite dry and hard, I smeared over with glycerine (not oil, lest it might vitiate the experiment), and passed it up the rectum, and there held it firmly while I gently injected, by means of a syringe with a fine nozzle fitting accurately the orifice of the fistula, a small quantity of tincture of iodine, taking care that none of it escaped externally. I then withdrew the plug from the rectum, and on it there was a distinct mark of the iodide of starch, which gave unmistakable evidence that, although the internal orifice might be small, there was really a complete fistulous track, and the operation was immediately proceeded with. I had much trouble in securing perfect healing of the incision, for I believe the original difficulty in the case was occasioned by the irregular course the fistula had taken. Still, a very satisfactory result was at last attained. The patient got quite well, and at the end of twelve months from the time at which I had given it as my opinion that the disease was cured, two surgeons were deputed by the assurance company to confirm my opinion, and this being satisfactory, the future annual premium on her life was accepted at the usual rate.

I may here observe that this plan is also applicable to urinary fistulæ, where, after perineal section, we hesitate to remove the catheter, the operation-wound having healed but not the sinuses, and we desire to know if the urethral orifice of one or more of them be still unclosed. By passing a starched bougie along the urethra, and injecting iodine along the sinus, the presence of such a communication, if it exists, can be demonstrated.

Before I approach the subject of the after-treatment of *fistula in ano*, where an operation has been performed, I should like to repeat a remark once made to me by Mr. Curling, no slight authority in reference to diseases in this region of the body. He told me that he had for many years advised that the surgeon who operates for fistula should be his own dresser ; in other words, that he should be extremely careful how he deputes to another the after-management of the case, for unless great care be taken, the fistula-incision may heal badly, or not heal at all, because the principles of right treatment have been overlooked. In this as in many other instances in surgery, the operation is but the beginning of the treatment.

I have rarely been content with Professor Syme's plan of simply preventing the possible re-closure of an incision made in the line of the fistula, by drawing the probe along its track from day to day, until finally healed. This mode of treatment may in some instances be sufficient, but it is not always successful.

My method, in all such cases, is twofold—first, in regard to the application used to the wound ; and next, as to the particular mode of dressing.

While the incisions are being made, I avoid the use of water or wet applications to the part. Any blood or pus which may escape I have removed by pieces of dry lint or linen cloth, and then, after the operation from first to last,

I used the carbolated castor-oil to protect the freshly cut surfaces from the irritation of feculent matter or mucus, or flatus escaping from the rectum. This oil, if so prepared that it is clear and bright, showing that the carbolic acid is perfectly dissolved in it, is a very soothing and comfortable application for the patient.*

If the oil is applied freely, no washing of the part with water or with soap and water, for the purpose of cleanliness, being on any account permitted, the fæces, if they escape, can be removed from the surface, already well oiled, by pieces of lint likewise soaked in the oil.

This method, if steadily pursued, will prevent further secretion of pus; and even in the deepest incisions required for the treatment of this affection, the whole surface may heal up entirely by granulations, in which the vascular excitement is so well controlled that very little pus is formed.

Now, as to the mode of dressing, I have just one suggestion to make of practical value, in regard to prevention of pain to our patient.

Patients who have been operated on for *fistula in ano*, often complain bitterly of the pain which they suffer every time lint is pressed deeply into the recesses of the wound, when the wound is dressed.

Supposing only one fistula has had to be divided (and the remarks would apply equally to each wound if there were several), the plan is this: The patient lies on his left side, in what we may term the obstetric position, with his

* ℞. Acid Carbolic puri (dry crystals), ʒss.; Ol. Ricini, fʒij. Solve leni calore, et adde Olei Amygdalar. dulc. *q.s.* ad fʒviij. Occasionally, patients are found, in whom, from some special idiosyncrasy, the skin will not tolerate the application of carbolic acid, even when mixed with oil in the most dilute form. In such cases, I have employed with advantage, olive oil, in every fluid ounce of which five grains of precipitated iodoform have been dissolved.

back to the surgeon. As the previous dressings are removed, the exposed surface is quickly and freely covered with the carbolated oil, applied by means of a full-sized camel-hair brush. A strip of lint, half an inch wide and ten inches long, or say the length of the breadth of ordinary lint, is then taken, well saturated with oil. It is folded over the end of a short square-ended flat probe, seen in Plate IV., Fig. D, and held in the right hand, so as to firmly fix it; or two, three, or more strips may be oiled, folded, and placed over the end of the probe. The surgeon then prepares the fore-finger of his left-hand by smearing it well with the oil, having, if needful, as an additional precaution, previously filled up the under-surface of the nail with soap or some thick cerate. He than passes the finger up the bowel, being exceedingly careful to direct the pad of the finger on its palmar aspect towards the line of the incision which was made in the operation, and in this way he protects the tender part by gently pressing the finger in its whole length against it.

He then passes the probe loaded with the strip or strips of oiled lint over the back of his finger (its dorsal aspect), until he knows the probe has entered well into the rectum beyond the end of the left fore-finger; in fact, beyond the extreme end of the incision. When this is done, the finger is slowly withdrawn and then the probe, leaving the strip of lint well fixed by one end high up in the bowel. After this, the lower portion of the lint, which still lies outside the bowel, is guided on to that portion of the cut which appears externally. It is thus gently pushed or packed into place; no pain is experienced by the patient, as none of the dressings are dragged over the tender and inflamed surface to which they might have a tendency to adhere.

On the external surface of the anus, some lint soaked in the oil is then placed; on it a piece of gutta-percha tissue,

and over this a pad formed of a small folded towel or napkin, kept in position by a broad T bandage, and still further secured by four safety-pins placed at the distant corners of the pad, so as to prevent, by the rolling up of the T bandage, that terrible rope-like disposition of it which is so often seen on removing the dressings in these cases, and which is not half so comfortable or easy to the patient as the gentle pressure of a wide soft pad.

In every case of *fistula in ano*, even where the healing process has gone on rapidly, and with perfect ease to the patient, I would advise the surgeon, before the case is discharged as cured, to assure himself, by examination with the speculum recti, that the entire length of the incision he has made is firmly healed. If this were done more usually, we should not hear so often of patients requiring what is called a second operation, after an interval in which the direct surgical supervision of the case has been suspended for a time and then resumed. With the plan I advocate, it is one continuous and successful process.

The surgeon is occasionally asked by the physician to examine and report whether, by reason of certain signs and symptoms, a patient is the subject of early obstructive disease of the lower bowel, benign or malignant.

I have known such cases, in which an opinion has been given that no obstruction existed in the rectum, at least at the time of the examination, and yet the progress of the case threw doubt on the diagnosis, for, in truth, the existence of the obstruction had not been detected, or the first observer had failed to find it, when another, examining the patient shortly afterwards, could prove its existence.

This, in some cases I have known of, was due to a peculiar condition of the rectum in early obstructive disease, which I believe is worthy of consideration.

It is this. We pass the finger into the rectum in such a case, move it freely about within its cavity, withdraw the finger, and say there is no obstruction, it is rather a large, loose rectum, and if there is contraction, it is high up and beyond reach. Or, an opinion is expressed that the cause of the obstruction is not organic, but rather functional, as far as the rectum is concerned, for it is so large and loose.

Now, here it is that the source of error comes in. A more careful examination will show that the enlarged, almost dilated condition of the rectum, just within reach of the finger, was caused by an obstruction higher up in the bowel, which by its resistance to the passage of the fæces had produced such violent expulsory efforts to be made, that there was a descent of the obstructed portion of the bowel into the part beyond, which became thereby stretched and dilated. There had been, as it were, a sort of commencing intus-susception, or involution of the bowel, and the dilated part below the contraction, had conveyed the idea to the finger of the surgeon in making his examination, that the bowel higher up was also large and loose. I have so often found this state of things on examining the rectum in suspected contraction, that where I find the ampulla of the rectum thus unusually capacious, so that the finger, moved sideways, does not easily touch the walls of the bowel, I always suspect contraction higher up, perhaps not beyond the limits of the rectum, and I have generally, by more careful exploration, proved such to be the case. Sometimes this may be done by asking the patient at the moment to press powerfully downwards, imitating for the time the involuntary expulsory movements of which he is sometimes the subject, and so the mass of diseased growth may be brought within reach. The same may be effected by change of position of the patient, for in one case, during dorsal decubitus, the

thickened mass may be more easily felt; in another it may be best reached in the lateral position; or even, in some cases, by placing the patient in the upright posture.

At any rate, I would suggest that this dilated state of the bowel just within the anal orifice must be regarded as a sign of rather doubtful import, as regards the natural patulency of the canal higher up, and perhaps just beyond the limits of our examination. Now this is not a matter of mere curiosity, in which we can afford to wait until by the increase of the contraction, and the distension of the bowel above it, we have revealed its true position; for the sooner we learn that we have to do with mechanical obstruction, and not merely with atony of the bowel, the better for our patient, since to persevere in the use of powerful aperients in the former case is not only wrong in principle but hurtful in practice.

Some would say, surely this can be decided by the use of the rectal bougie. This will always establish the fact of stricture, or no stricture, high up in the bowel.

But like many other signs in surgical practice, this is positive rather than negative in its indications.

If a large olivary-bougie of moderate size can be passed without resistance eight or ten inches up the rectum, just into the sigmoid curve of the bowel, it is pretty certain that thus far, at least, no stricture exists, nor any contraction of the bowel to a practically serious degree.

The information thus obtained is positive as far as showing that there is no special contraction of the canal; whereas, in a case of acute obstruction, if a bougie of average size, or the long O'Beirne's tube, will not pass, or cannot by ordinary pressure be made to pass, this does not supply conclusive evidence that organic contraction is present, that there is stricture of the bowel, or that the canal is permanently narrowed from any insuperable

cause. The bougie, if not very pliable, and carelessly directed, may impinge upon the front of the sacrum, or, if this bone is more than usually curved, may strike against the upper projecting part of it, and, so failing to pass, simulate the presence of contraction. Or, if the bougie be too soft and flexible, it may have its extremity caught in a fold of the mucous membrane, and there resting awhile may bend upon itself, still passing on into the interior; and, as I have seen with a long enema-tube, it has curled upon itself so that a great part of the fluid injected through it was shot out of the rectum, in a powerful stream directly against the operator.

Therefore, as I have just said, the evidence furnished by the passage of rectal bougies and such-like instruments must be regarded as of value in cases of suspected obstruction, only in a negative sense. If they pass easily for a certain distance, with no indications of having been curled up or bent out of the nearly straight line, well and good; there can be no obstruction, so far, in the bowel, and the evidence is valuable. But the difficulty experienced in passing such bougies may be apparent rather than real, and so it should always be received with great caution as positive proof of contraction.

In suspected cases of disease of the rectum, much may be learnt as a preliminary sign, by observing the condition of the anus in reference to size and distance from the surface of the perineum, estimated in its relation to a transverse line between the tubera ischii.

Here I would confine my remarks to the changes in the condition of the male rather than the female perineum. In the female, from displacements of the uterus and changes incident to parturition, the anal portion of the perineum is often very considerably altered in form.

Unless in any given case there is some natural peculiarity

of formation, I have noticed very generally that, where the cause of the trouble in the lower bowel was rather one of irritation and spasm than of relaxation and debility of the parts, when the patient is examined while placed on his side, the anus will be seen to be contracted and drawn high up in the perineum, which has therefore a conical configuration, and the anus is held there by undue action of the levator ani, and the closing fibres of the sphincter. There is often, however, an opposite condition of things; the perineum in its anal portion may be unusually flat, the anus low down, large and protruding, and this will indicate neither spasm nor over-action of the levator, but an opposite condition which permits a falling of the bowel and its passive dilatation, with the commencement, possibly, of slight prolapsus of the gut.

Obviously the treatment required in these two classes of cases will be different. In the one we must allay irritability by the removal of its cause; or by diminishing, if possible, the sensitiveness of the part in the other, we must endeavour to give strength and tone to the structure, so as to counteract the mischief already done, or limit its advance.

In the former class we often find a fissure of the anus, or an irritable ulcer of the rectum. Here a digital examination without an anæsthetic is almost an impossibility, for it can rarely be borne by the patient. Yet it may sometimes be effected, and then where the patient can or will consent, if we doubted which of these two forms of disease we had to deal with, I have observed a very simple means of deciding. If it be a case of irritable ulcer in the rectum, generally, I think, on its posterior wall, you may with great gentleness manage to pass the finger into the bowel; and so long as you do not press sharply or deeply on the ulcer, the pain is bearable. And I have also noticed that you may

rotate or turn round your finger when it is so placed and still within the rectum, and no special increase of pain is experienced, or perhaps none at all. But not so in the fissured anus or the fissured rectum. In this terribly painful affection, you may, with great gentleness, having the finger well lubricated, get it through the powerfully contracted sphincter, and then, not moving it for a time, the patient may at last tolerate its presence; but the moment you begin to rotate or twist your finger round, that instant he will call out in great agony, and we know how piteously sometimes such patients express the fearful pain they then experience.

Fissure of the anus may be easily and certainly relieved by section of the mucous and sub-mucous tissue, without much distress to the patient at the moment of its division; but an ulcer of the rectum requires a longer and deeper cut, and this can hardly be done without the use of the speculum, and unless the patient be in a state of complete anæsthesia. It may also require constitutional as well as local treatment for its cure.

I now wish to say a few words on that common condition of the lower bowel, so often brought under the notice of the surgeon, sometimes in an early stage, but perhaps more frequently as a subject for operative interference, and that is the presence of hæmorrhoids, or piles, in their various stages or degrees of development. In considering the ways in which piles are formed, we must remember that there is generally, in severe cases, a certain predisposition or proneness to their formation, either independently of, or in addition to, those special habits or modes of living which are said to be their chief cause.

Whatever these may be, either taken singly or collectively, there are instances to be found of persons who ought,

upon all principle, to have had piles, and yet are free from their presence; and others who have been the subject of them, either at a much earlier period of life than might have been expected, or under conditions of health and habits which ought not to have led to their early development.

I am inclined therefore to think, from inquiries I have made of patients under my care, that the production of piles, as life advances, is peculiar to some persons under whatever circumstances they may be placed; and that in these, as compared with others, there appears to be a sort of hereditary tendency to this malady.

Looking at the subject mechanically and anatomically, I am of opinion that a natural looseness and relaxed condition of the sub-cutaneous and the sub-mucous tissue, in and about the rectum and its neighbourhood, is the chief predisposing cause to the production of external and internal piles. This will be a local cause, while a more distant and more general one must be referred to pressure in advance of the returning current of venous blood in the mesentery, the portal system, or the heart.

There is of necessity a considerable difference in the expansible capacity, and in the power of subsequent contraction exhibited from time to time, by the various tissues placed around the aperture of the bowel, and chiefly those of the deeper layers of the skin. Consider the difference there must be in the condition of the parts surrounding the anus, when it expands sufficiently to permit the passage of a large mass of hardened fæces, as compared with its normal state of rest, or when the aperture is so effectually closed by muscular action that, as Hilton puts it, the mighty power of the sphincter prevails, and flatus is retained within a distended rectum, or is expelled through an aperture too small to allow the passage with it of liquid fæces.

Now, after these repeated stretchings and expansions of the part, the subcutaneous fibres of the superficial sphincter are the first to suffer, and in process of time they fail to gather up in radiating folds the skin with which they are so intimately incorporated. The skin, left thus loosely disposed around the anal orifice, soon becomes the subject of œdema, which in its earlier stages may subside, to return under similar conditions, until, at last, other causes contributing to the same result, it is not simple œdema which invades the part, but a more inflammatory condition, with lymph in addition to serum, and a hardening and thickening of the tissue, thus producing a true external pile.

We owe to Hunter our knowledge that in external piles, frequently but not necessarily, we have a large varicose vein at the base of the pile, and within this vein a clot which gives firmness and definity to the growth, and renders its ultimate subsidence difficult.

Tracing the alterations which occur in the perivenous tissues, we can understand from recent observations, how an intra-venous clot is hastened in its formation by changes in the endothelium of the vein itself which favour the clotting of the blood. The veins in their upward passage along the walls of the bowel, interlaced with, and surrounded by, the muscular fibres, are already charged with blood which cannot escape. These changes do not so readily occur if the cellular tissue around is not superabundant, but of firm and strong consistence. The same with regard to the earliest formation of internal piles. Here the looseness of the submucous tissue is the great predisposing cause as far as local changes are concerned. We may regard the mucous lining of the lower bowel, for the purpose of marking the changes incident to the growth of hæmorrhoids, as a cylinder with two coverings, or rather as three cylinders,

one within the other, the mucous and the muscular, with the cellular coat between them. In the latter space the vessels, nerves, and lymphatics ramify, and especially the veins, and these lie closely beneath the mucous coat itself. From a variety of causes, such as pressure from above restraining the free return of venous blood, or sudden compression by muscular action, these veins beneath the mucous membrane are rendered tense and swollen, and drag upon the connective tissue which should retain them in position. Thus a temporary bulging and enlargement of the veins is produced, which by repetition becomes permanent; the blood, which at first was retained within them for only a moment, now no longer leaves them, or if it does, after each act of defecation it escapes more and more slowly, and thus the swelling is perpetuated, and changes are set up which at last culminate in the production of the true hæmorrhoidal tumour, the internal pile.

But these observations apply chiefly to the alterations which occur in the contour of the veins producing these growths, and do not refer to those arterial vascular tumours of the rectum which, being formed principally by dilated arterial capillaries, and almost nævoid in their character, are the seat of frequent arterial hæmorrhages.

While we classify piles as either external or internal, if we deal only with their composition, we regard the one as cutaneous, and the other as mucous. But to comprehend their mode of growth, the ultimate consequences, and the part the loose cellular tissue takes in their formation, we must look to the muco-cutaneous pile and observe its mode of development.

Where a patient has long suffered from external piles, he may not experience much inconvenience from them by the imperfect action of the sphincter, until the fold of skin increases inordinately, and until there is likewise a

certain descent of the mucous membrane. This does not return into the bowel, but remains outside.

Now begins a series of changes which will attract the attention of the sufferer, and surely lead him to seek advice. The portion of the mucous membrane remaining outside, being exposed to contact with the air and to friction of the dress, will become so congested and inflamed as to secrete mucus far exceeding what might be thought possible from so small a surface. The result is that from this rectal blenorrhagia, if I may so term it, there is constant moisture of the part, and with it, very often, superficial ulceration, either of the mucous surface itself, or of the border line of skin near to it.

This state of things, when once established, will inevitably increase. The prolapsus, small as it is, goes on enlarging, and a constant dragging action will be perpetuated, not only by the expulsory movements of the bowel when it will be most excessive, but likewise in the intervals. This is particularly the case where the erect position of the body is long maintained, or where, from fatigue in walking or from any great exertion, the muscular system is exhausted, together with the fibres of the external sphincter, which ought to resist the dropping of the part in the early stage of prolapse.

I have known patients who have referred their first symptoms of prolapsus or excessive protrusion of the mucous membrane of the rectum to some great exertion, a walk of several miles, or some unusual muscular strain.

This prolapse of the bowel would be much less likely to occur, if the layer of cellular tissue beneath the mucous membrane were not so excessively loose as to permit its descent, or if the descent of mucous membrane with the enlarged veins beneath it, did not drag upon and elongate the fibres of the cellular tissue itself.

These changes, it will be found as the disease progresses, advance with accelerated velocity. The greater the quantity of tissue forced down beyond the line of the external sphincter and held there, the greater will be the actual size of the prolapsus, and of the veins contained within it.

I do not refer to cases of simple prolapsus recti, such as are seen in children born in hot climates, or who have lived there from an early age. No doubt, with them the looseness of the sub-mucous tissue is the proximate cause of the prolapse, as well as of the atony of the sphincter muscle which should restrain it. But, in these cases, there is no special enlargement of the veins beneath the membrane. If any vessels are enlarged they are the fine arterioles, and hence the scarlet-red colour of the prolapsed part. These remarks apply to cases of ordinary hæmorrhoidal tumour, and the observations I am about to make on the best method of treatment refer entirely to the condition of the sub-mucous tissue.

First, as to palliative measures for the treatment of piles; and next, as to the curative, with the best to be selected. Among our preventive and palliative treatment of a general or constitutional nature, we must place foremost on the list, diet and habits of life. These, so far as they lead to plethora and over-distension of the venous system and of the hæmorrhoidal plexuses, will obviously require chief attention; and where the employment or particular work, in which the patient is engaged, seems to have a tendency to lead to such venous congestion, either general or local, it must, if possible, be corrected. If I might mention any special medicine, or any set of medicines, which I have found to fulfil the conditions requisite to the relief of hæmorrhoidal disorder, with a tendency to constipation, with which it is so generally associated, I would specify a combination of remedies consisting of sulphate of magnesia

in moderate doses, with dilute nitric acid to increase its aperient action; and to give to it a more decidedly chologogue influence, taraxacum as a diuretic, and quinine as a stomachic tonic, for the purpose of correcting that debility of the digestive organs so often the result of the prolonged use of aperients. This is the formula,* and it has often happened to me when consulted by a patient anxious to be relieved by operation of the constant fret and trouble of piles, that, having prescribed this medicine as a preliminary treatment, the effect has been so marked in the way of relief, he has declined the operation, and gone on very well without it. So that I often hesitate to prescribe it, lest the patient should postpone the operation, where I believe, from the frequent recurrence of hæmorrhage, an operation would be the proper treatment for the case.

Where the liver is sluggish, the urine high-coloured, and the alvine secretions are abilious, with nausea or vomiting of bile, I add to the persistent use of the laxative mixture an occasional dose of blue pill, with the dried carbonate of soda which, I believe, assists the action of the mercurial, and enables us to deal with a smaller dose.

Then for preventive and palliative treatment of a local nature,—to avert a relaxed condition of the sub-mucous tissue,—the daily ablution of the perineum with cold soap and water, applied quickly so as to induce rapid contraction of the capillaries and of the muscular fibres, is, in my opinion, far superior to immersing the buttocks and the pelvis in cold water, as in the cold sitz bath so often

* ℞. Quinæ Sulph., gr. xij; Magnes. Sulph., ℥j; Acid. Nitric. dil., f℥iij; Æther Chloric (Duncan's), f℥iij; Succ. Tarax., f℥iss; Syr. Aurant., f℥vi; Aquæ *q.s.* ad f℥xij. A wineglassful every morning, an hour before breakfast.

℞. Pil Hydr., gr. iv; Sodæ Carb. exsiccat., gr. viij; Ext. Hyoscy. gr. xij. M. ft. massa in pil. viij equales dividend. One pill at bedtime, occasionally, for three nights in succession.

prescribed. This latter plan may be of service, but has this possible disadvantage, that the vessels on the surface covering so large an area, being suddenly contracted and emptied, the blood is driven from the surface into the veins which correspond to the parietal branches of the internal iliac system, the gluteal, sciatic, and internal pudic arteries, producing for the moment, congestion of the visceral plexuses, from which we can never be sure that an effective re-action will be established. Failing this, it is very questionable to me, whether more harm than good is not done by the use of the cold hip-bath, in many hæmorrhoidal affections occurring in subjects with feeble circulation and imperfect powers of re-action. Cold applied effectively to a small rather than to a large surface, and that directly in the region where it is intended to act, is not only safer, but much more likely to be beneficial.

Sir Benjamin Brodie had a plan which was quite in harmony with these principles. He used to instruct his patients with relaxed bowel and tendency to prolapsus and internal piles, to inject a small quantity of very cold water into the empty rectum after each act of defecation, but to use no more in quantity than could be retained with comfort.

I have found it very beneficial in such circumstances to substitute for the plain water a very weak solution of alum or of tannin, as being of immense service, as a palliative measure, to restrain the enlargement of the veins within the bowel and their subsequent protrusion externally. And in addition to other local applications which I have found very convenient and useful for external piles, I would mention an ointment made of vaseline, in which there are ten grains to the ounce of tannin ; or another, in which finely-powdered nitrate of lead is substituted for the tannin. Where ulceration of the surface does not exist, I prefer to

use the tannin-ointment, as it is an elegant substitute for the old gall-ointment; but if the surface of the external, or of the muco-cutaneous, pile is inflamed, the ointment of the nitrate of lead will prove more suitable.

For the radical cure of hæmorrhoids by their entire removal, while I might enumerate a great number of methods, some of ancient, some of modern adoption, I will content myself with describing one only, which I have found so generally successful as to cause me to discard the others, although perhaps each of the many plans now used by surgeons may have something to be said in its favour.

For the removal of external piles—that is, the cutaneous pile—I have nothing to add in regard to our ordinary mode of operating, whether done by one cut with the scalpel, or by many cuts with scissors.

But when we have to treat an advanced case of the muco-cutaneous pile, or a number of internal piles with more or less prolapsus, then their removal, which I strongly advocate, must be proceeded with in a certain orderly manner.

The means of removal—that is, the instrument used in the operation up to a certain stage, is the scissors, and in this I follow, as I have done in the operation for the removal of the tongue, the method introduced by Mr. Walter Whitehead, who has employed it in the anal region as well as in the mouth.

I know the prejudice which exists in the minds of many surgeons against the use of scissors, compared with the scalpel, in the removal of parts to be operated upon; but assuredly where the parts are very vascular, or are liable to be so in certain portions of their structure, a succession of small clips or cuts with scissors, by dividing only minute portions of tissue at a time, with an interval in which we can observe the amount of hæmorrhage and deliberately

control it, is safer in the end than where many blood-vessels are dividedly rapidly with each sweep of the scalpel, and excessive bleeding follows. The scissors which we use should have the end of each blade well rounded (Plate IV., Fig. E), so that it may not scratch or puncture the part against which it is pressed, but only cut across it, somewhat parallel to the surface. The condition of the scissors should be tested beforehand, to prove that they will cut well up to the extreme end; and this may be done on wetted paper or leather, to imitate the flaccid, yielding structures with which we have to deal.

The patient being prepared by having had the bowels emptied by the use of gentle aperients for some days previously (rather than by one large dose just on the day of the operation), and an injection of glycerine and warm water an hour before, I place him in the lithotomy position, and secure the limbs with anklets and wristlets in the usual way. The first thing is to dilate the anus, and to draw down so much of the lining membrane of the bowel, with the enlarged veins beneath it, as will enable us to judge accurately of the size and extent of the growths. I have tried many plans for this purpose, but none have answered with me so well as to pass an ordinary bivalve rectal speculum well into the bowel, expand the blades, and while so expanded withdraw the instrument. The mucous membrane, if it is at all loose, can then be completely drawn out by two or three of such manipulations. This done, and the prolapsed bowel being kept outside the anus, I proceed to make a number of cuts with the scissors just within the line of junction between skin and mucous membrane—that is, in the mucous membrane itself—passing round the bowel, except perhaps at one or two places where the continuity of the circle thus formed may be interrupted by little bridges of the muco-cutaneous mem-

brane. This is not needful if the cutaneous tissue around the anus has been much relaxed; but if it is at all tight and unyielding, it is prudent to do so, to prevent the formation of an uninterrupted annular cicatrix, which by its firmness might afterwards interfere with the free expansion of the external orifice of the bowel.

After cutting round the anus in this manner, going on more and more deeply in every succeeding circuit, the scissors will get into the cellular space between the mucous membrane and the muscular wall of the lower part of the rectum.

We know that we are within it when we see the muscular fibres; and we take care not to go too near to the mucous membrane, nor to cut through it.

As this is being done, we see the hæmorrhoidal growths lying on the outer surface of the separated inner cylinder. Here and there in this cellular space a small vessel may be wounded. If this is done, as we watch carefully the effect of each clip of the scissors, it is easy to seize the bleeding point with Sir Spencer Wells' very useful pressure-forceps. To stop the bleeding for the moment we may twist the vessel there and then.

Having thus separated the mucous cylinder with the hæmorrhoidal enlargements and the companion vessels, from its attachments, we divide it into several smaller portions, each of which will contain a bunch of vessels as an hæmorrhoidal growth.

These being still further isolated by one or more cuts in the mucous membrane, we twist off each separately, with torsion-forceps, curved and fashioned as seen in Plate IV., Figs. F F, having made the base narrow enough for that purpose, and any bleeding being stopped by the means already mentioned.

When two or three of these small masses have been so

removed, we seize the mucous membrane left above them, and sew it by means of a needle curved, as in Plate IV., Fig. G, which serves as a hook to draw down the mucous membrane, as well as to pierce the skin around. In the plate, this needle is shown loaded with a fine ligature of considerable length, which has been passed through the eye of the needle, then through a fine loop of steel above its angle, and, lastly, through a hole drilled obliquely through the handle itself.* In this way we can make several stitches, cut off each in succession without reloading the needle with thread, and so save much time at this stage of the operation.

If we do not secure the mucous membrane in this way before all the masses have been twisted off, we lose command over it, and it slips out of convenient reach. This plan, which is of Mr. Whitehead's suggestion, is of very great practical importance.

When the last hæmorrhoidal mass has been thus separated, and the mucous membrane has been fixed to the skin, not too tightly lest the sutures holes might ulcerate too rapidly, a perfect ring is left at the orifice of the bowel, with some eversion or out-rolling of the mucous lining, which serves to determine the escape of any discharge from the rectum while the parts are healing. This disposition of the mucous membrane secures the important fact, that the only part from which hæmorrhage can arise after the operation, being in the space between the mucous cylinder and the one formed by muscular structure, all the bleeding that may occur must be external and visible, and proper measures can be had recourse to for its control. There can be no concealed or internal hæmorrhage, but whatever blood or serum may escape

* This can be traced in the Plate with the help of a magnifying lens.

after the operation will show itself externally, where it can be easily and effectually dealt with.

The next step is to place a morphia suppository within the rectum, and lodge it high up in the bowel by a proper instrument, and then to smear the divided surfaces with the carbolated oil. The after-treatment of the case locally, consists in the free and persistent application of the oil to the part, so that it may serve as a means of protection from the air, and from the irritation or poisonous action of any of the discharges from the bowel. It will be found to be as successful here as in the after-treatment of cases of operation for *fistula in ano*.

I will not go into the merits of this particular mode of operating as compared with other methods. I will only say I believe it to be very safe and very effective. It is a tedious operation—that is to say, it takes much time; but if rapidity in operating is no longer our test of excellence, I am sure this plan of removing internal piles by torsion will meet the approval of all who will give the operation a fair trial.

Thus have I brought to an end the lectures I have had the honour to give as Hunterian Professor in this College, and it only remains for me to thank you with all sincerity for your attendance here, and the considerate way in which you have listened to my remarks.

I fear that to many it may seem as if much I have said has been so self-evident and so generally admitted as to render its repetition quite unnecessary; but, as far as mere detail is concerned apart from theory or special views in the practice of a surgeon, nothing which may help to bring about successful results can be called needless or unimportant.

The surgeon may devise an operation of great utility;—

the architect may design a house in all its due proportions: but in either case it is by detail, and by detail alone, that success is secured; safety to the patient, or perfection in the building, in which every stone and beam shall have been so fashioned beforehand as to contribute, however slightly it may be, to the completeness and security of the whole.

I know there are some who always very lightly value minutiæ, and are apt to advocate plans of action founded upon general principles alone, regardless of detail; but as the whole is made up of its component parts, so our proceedings can only be rendered certain in effect by watching every point, however seemingly trivial, with scrupulous care.

If we contemplate the artistic skill exhibited by Sir Wm. Ferguson in his operations on the palate; the bold yet quiet work of Sir Spencer Wells in his abdominal sections; or the thoughtful ingenuity of Sir Joseph Lister in designing his operation for the excision of a diseased wrist-joint, or in wiring a fractured patella—men worthily decorated by Her Majesty in acknowledgment of their high professional reputation—we may safely adopt as our motto, *Chirurgus ornatus magnus est in magnis, maximus in minimis.*

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